Form 132026wd
3-02

Iowa Department of Transportation

Bid Response

Office of Procurement and Distribution
800 Lincoln Way
Ames, IA 50010

		Date Bids Due: June 2, 2010	Time of Bid Opening: 1:00 P.M.
Proposal Number: LT00786	Commodity Description: New Hoop Building for Clarinda and for Rockwell City		Bid Opening Location: Ames, IA
Contract to Begin: June 16, 2010	Date of Completion: August 20, 2010	Proposal Guaranty Amount: $5,000.00 for each hoop project	Liquidated Damages: $125.00/Day

Purchasing Agent to contact for additional info.: Mary Zimmerman	e-mail: mary.zimmerman@dot.iowa.gov	Phone: 515-239-1298	Fax: 515-239-1538
Company Name:			Federal Tax ID:
Street Address:	City:	State:	Zip Code:
Individual preparing bid (type or print);	e-mail:	Phone:	Fax:

Will you sell these items/services to political subdivisions within the State of Iowa under the same prices, terms and conditions as specified?
☐ Yes ☐ No

Are you an Iowa Targeted Small Business?
☐ Yes ☐ No

GENERAL INFORMATION

This bid package includes the proposal, schedule of prices, standard terms and conditions, supplemental terms, specifications, mailing label and other information you need to prepare your bid. The pages of the document labeled "Bid response" must be typed or completed in ink, signed, and returned in a flat style envelope prior to the bid opening date and time. Please use the furnished mailing label, or indicate on your return bid by marking "Iowa Department of Transportation, proposal number & letting date" on the outside of the return envelope. The bidder may personally deliver, mail, or select a carrier that ensures timely delivery. **Faxed bids will not be accepted.**

If required, each bid must be accompanied by a proposal guaranty in an accepted form, in the sum indicated above. Refer to the Standard Terms and Conditions for the accepted forms in which the proposal guaranty requirement may be fulfilled. Bids lacking a required proposal guaranty will not be considered for award. If the contractor fails to enter into a formal contract within fifteen (15) days after award is made, the proposal guaranty may be retained by the State.

PROPOSAL STATEMENT

The entire contents of this Proposal, Addendums to the Proposal, Specifications, Supplemental Terms and Conditions, Standard Terms and Conditions, and Schedule of Prices shall become part of the contract.

We promise to enter into a contract within fifteen (15) days after award or forfeit the proposal guaranty furnished herewith.

We promise to furnish all materials, equipment and/or services specified, in the manner and the time prescribed, at prices hereinafter set out.

We certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a bid; that this bid has been independently arrived at without collusion with any other bidder, competitor, or potential competitor; and that this bid has not been knowingly disclosed prior to the opening of bids to any other bidder or competitor.

We certify that all materials, equipment and/or services proposed meet or exceed the specifications and will be supplied in accordance with the entire contents of this proposal.

We promise to complete the contract within the contract period, or pay any liquidated damages, if stipulated, for each calendar day as set forth in the bid documents.

Signed _____Date _____

Iowa Department of Transportation
Schedule of Prices
Proposal No.: LT00786
New Hoop Building for Clarinda and for Rockwell City
Letting Date: June 2, 2010 1:00 P.M.

Project Description: New building construction of a hoop building with asphalt pad; one (1) for Clarinda located at 1150 East State Street, Clarinda, IA 51632, and one (1) for Rockwell City located at 27700 Norridge Street, Rockwell City, IA 50579. These items are NOT tied.

Item No.	Description	Quantity	Unit/Price	Total Bid Amount
1.	Hoop building with asphalt pad for Clarinda located at 1150 East State Street, Clarinda, IA 51632 according to plans and specifications.	1 Job	Lump/Sum	$_____
1.	Hoop building with asphalt pad for Rockwell City located at 27700 Norridge Street, Rockwell City, IA 50579 according to plans and specifications.	1 Job	Lump/Sum	$_____

I hereby certify that this proposal meets or exceeds the minimum requirements including specifications and addendums.

Authorized Signature _____

Contact Person:

Company _____

_____
(Print Name)

Address _____

Federal Tax I.D. No.:_____ _____
(City) (State) (Zip Code)

Contractor's Registration No.:_____ Phone No: _____

Email:_____ Fax No.: _____

I acknowledge receipt of addendum nos.:_____

Iowa Department of Transportation
PURCHASING PROPOSAL
Standard Terms and Conditions

Contents of Contract: The entire contents of this proposal shall become a part of the contract or purchase order. In case of a discrepancy between the contents of the contract documents, the following items listed by descending order shall prevail:

- Addendums
- Purchasing Proposal/Schedule of Prices
- Specifications, Plans and Drawings
- Supplemental Terms and Conditions
- Standard Terms and Conditions

For example, if there is a statement in the specifications that contradicts a statement in the Standard Terms and Conditions, the statement in the specifications shall apply.

Preparation of Proposal: All proposals must be completed in every respect and must clearly answer all questions contained in the proposal. Bids must be typed or completed in ink on the forms supplied by the department. **You must sign your bid and seal it in the envelope.** Bids must be received prior to the bid opening date and time. The bidder may personally deliver, mail, or select a carrier that ensures timely delivery

Proposal Guaranty: If required, a proposal guaranty, in the sum listed on the proposal form, can be supplied in one of the following ways: (1) A certified check or credit union certified share draft, cashier's check, or bank draft, drawn on a solvent bank or credit union, may be certified furnished with your bid. Certified checks and certified share drafts shall be drawn and endorsed in the amount indicated. Checks or drafts shall be made payable either to the Iowa Department of Transportation (Iowa DOT) or to the bidder. If payable to the bidder, the check or draft shall be endorsed, without qualifications, to the Iowa DOT by the bidder or his authorized agent. (2) An insurance or surety company may be retained to provide a bond in fulfillment of the proposal guaranty requirement. A properly completed and signed copy of the Proposal Guaranty (Form 131071) must accompany the bid. The Iowa DOT's Proposal Guaranty form must be used, no other forms or formats will be accepted.

Bid Opening: Bid Openings are public and conducted at the Ames complex unless otherwise specified. Proposals received after the time of the bid opening will be returned unopened.

Debarment and Vendor Suspension: By submitting a proposal, the contractor is certifying that it and its Principals and/or subcontractors are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by the State of Iowa or any Federal department or agency.

Communications: Questions concerning this proposal should be directed to the Purchasing Agent listed on the Purchasing Proposal. Inquiries can be written, phoned, or faxed. In all cases, written communication will take precedence over verbal communication.

Faxed bids will not be accepted.

Acceptance/Rejection: The State of Iowa reserves the right to accept or reject any or all bids and to waive irregularities or technicalities, provided such waiver does not substantially change the offer or provide a competitive advantage to any vendor, in the judgment of the Iowa DOT. The Iowa DOT also reserves the right to accept that bid which is deemed to be in the best interests of the state. Any unauthorized changes, additions, or conditional bids including any ties to another bid or proposal or any reservations about accepting an award or entering into a contract, may result in rejection of the bid. Bids must remain available for award for thirty (30) days from date of bid opening.

Method of Award: Award shall be made to the lowest responsible, responsive bidder unless otherwise specified. By virtue of statutory authority preference will be given to products and provisions grown and coal produced within the State of Iowa.

Award Protests: Protests of award recommendations are to be addressed to the Director of Purchasing, and shall be made in accordance with paragraph 761--20.4(6)"e", Iowa Administrative Code.

Bid Results & Disclosure: A bid tabulation will be sent to all responsive bidders with an award recommendation indicated. At the conclusion of the selection process, the contents of all proposals will be placed in the public domain and be open to inspection by interested parties, according to state law. Trade secrets or proprietary information that are recognized as such and are protected by law may be withheld if clearly identified as such in the proposal.

Contracts: Successful contractor(s) may be sent either a formal Contract or a Notification of Award as confirmation of acceptance and award. Contracts shall be for the term stated on the Proposal and may be extended for additional period(s) under the same terms and conditions upon mutual agreement. The contractor may not assign the contract to another party without written authorization from the Office of Procurement and Distribution.

Pricing and Discount: Unit prices shown on the bid/proposal shall be quoted as the price per unit (e.g., gal., case, each, etc.) as stated on the request. If there is a discrepancy between the unit bid prices, extension, or total amount of bid, the unit prices shall prevail. Unless otherwise indicated, prices shall be firm for the duration of the contract or purchase. Discounts for early payment are allowed, but not considered in award of the contract.

Taxes: Prices quoted shall not include state or federal taxes from which the state is exempt. Exemption certificates will be furnished upon request.

Payment Terms: The Iowa DOT will normally pay properly submitted vendor invoices within fifteen (15) days of receipt, providing goods and/or services have been delivered, installed or inspected (if required), and accepted. Invoices presented for payment must be only for quantities received by the Iowa DOT, must reference the purchase order number, and be submitted for processing.

Quality: All material shall be new and of first quality. Items which are used, demonstrators, refurbished, obsolete, seconds, or which have been discontinued are unacceptable without prior written approval by the Iowa DOT.

Recycled Content: The Iowa Code encourages purchase of products and materials with recycled content, including but not limited to paper products, oils, plastic products, compost materials, aggregate, solvents, and rubber products. When bidding recycled items or alternatives, note on your bid the recycled content, if known.

Infringement: Goods shall be delivered free of the rightful claim of any third party by way of infringement. Contractor shall indemnify and save harmless the State of Iowa and the Iowa DOT against all claims for infringement of, and/or royalties claimed under, patents or copyrights on materials and equipment furnished under this bid.

Default: Failure of the contractor to adhere to specified delivery schedules or to promptly replace rejected materials shall render the contractor liable for all costs in excess of the contract price when alternate procurement is necessary. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of this contract.

Ames Deliveries: Materials delivered to the Distribution Center's Receiving Section, 800 Lincoln Way, Ames, IA shall be delivered between the hours of 7:30 a.m. and 3:30 p.m. on any day except Saturday, Sunday, or a holiday. For deliveries to locations other than the Distribution Center, the contractor may wish to contact the destination location for available times to deliver, as some Iowa DOT offices and locations work a non-standard work week.

Delivery: Deliveries shall be F.O.B. destination unless otherwise specified. All deliveries shall be accompanied by a packing slip indicated the vendor, quantities shipped, and the purchase order number(s). All delivery charges shall be included in the bid price and paid by the contractor. No collect or C.O.D. deliveries will be accepted. When entering into a contract, the contractor shall notify the freight company that all freight and delivery charges are to be prepaid by the contractor. The Iowa DOT will not be liable for any freight claims or unpaid freight bills arising from this contract.

Applicable Law: The contract shall be governed under the laws of the State of Iowa. The contractor shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of this contract and which in any manner affect the work or its conduct. Any legal action relating to the contract shall only be commenced in the Story County, Iowa, District Court or the United States District Court for the Southern District of Iowa.

Administrative Rules: For Additional details on the rules governing the actions of the Office of Procurement and Distribution refer to 761 IAC, Chapter 20, Iowa Administrative Code, entitled "Procurement of Equipment, Materials, Supplies and Services".

Equal Opportunity: Firms submitting bids must be an "Equal Opportunity Employer" as defined in the Civil Rights Act of 1964 and in Iowa Executive Order Number Thirty-four.

Affirmative Action: The contractor (and also subcontractor, vendor, or supplier) is prohibited from engaging in discriminatory employment practices forbidden by federal and state law, executive orders and rules of the Iowa Department of Management, pertaining to equal employment opportunity and affirmative action. Contractor may be required to have on file a copy of their affirmative action program, containing goal and time specifications. Contractors doing business with Iowa in excess of $5,000 annually and employing 50 or more full time employees may be required to file with the Iowa Department of Management a copy of their affirmative action plan. Failure to fulfill these non-discrimination requirements may cause the contract to be canceled and the contractor declared ineligible for future state contracts or subject to other sanctions as provided by law or rule.

Targeted Small Businesses: The Iowa DOT seeks to provide opportunities for women and/or minority small business enterprises. To apply for certification as an Iowa Targeted Small Business, contact the Iowa Department of Inspection and Appeals (515-281-7357). Contractors shall take documented steps to encourage participation from Targeted Small Businesses for the purpose of subcontracting and supplying of materials.

Interest in Contract: No state or county official or employee, elective or appointive shall be directly or indirectly interested in any contract issued by the Iowa DOT, See Code of Iowa 314.2.

Records Audit: The contractor agrees that the Auditor of the State of Iowa or any authorized representative of the state, and where federal funds are involved, the Comptroller General of the U.S. Government, shall have access to and the right to examine, audit, excerpt, and transcribe any directly pertinent books, documents, papers, and records of the contractor relating to orders, invoices, or payments of this contract.

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Iowa Department of Transportation
General Requirements
New Hoop Building for Clarinda and for Rockwell City
Proposal No.: LT00786
Letting Date: June 2, 2010 1:00 P.M.

Part 1 General Conditions

1.1 Adoption of General Conditions

A. The General Requirements of this Contract shall include the "General Conditions", "Instructions to Bidders" and the "Supplementary General Conditions" as herein stated.

B. "THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION", A.I.A. FORM #A-201, LATEST EDITION AND A.I.A. DOCUMENT, "INSTRUCTIONS TO BIDDERS", FORM #A-701, LATEST EDITION, SHALL BE INCLUDED, AS MODIFIED IN THE "SUPPLEMENTARY INSTRUCTIONS TO BIDDERS" AND "SUPPLEMENTARY GENERAL CONDITIONS", AND BOUND WITH THE STANDARD FORM OF AGREEMENT BETWEEN THE CONTRACTOR AND OWNER", A.I.A. FORM #101, LATEST EDITION, AS A PART OF THIS CONTRACT SPECIFICATION.

C. All bidder information and conditions, bid check lists and similar documents included in the specification by the Office of Purchasing and Distribution of the Iowa Department of Transportation, Ames, Iowa are hereby made a part of the General Conditions.

Part 2 Supplementary Instructions to Bidders

2.1 General

A. Owner:
The Owner of this project is the Iowa Department of Transportation, 800 Lincoln Way, Ames, Iowa 50010.

B. Contract Document Information:

Contact persons regarding project site visit contact:
Iowa Department of Transportation Clarinda
Don Herdliska: 712-523-2383
Iowa Department of Transportation Rockwell City
Phil Heinlen 712-297-8222

Questions regarding the bidding documents should be directed to:
Office of Procurement and Distribution
Purchasing Agent – Mary Zimmerman
Phone No.: 515-239-1298 Fax No.: 515-239-1538
Email: mary.zimmerman@dot.iowa.gov
Plans have been mailed to local plan rooms.

To request a bid packet for this project, access our website http://www.iowadot.gov/purchasing/lettingschedule.htm , or contact the Office of Procurement and Distribution, Purchasing Office at 515-239-1310. Plan holders list

for this project can be obtained by calling this number.

C. Scope of Work

Contractor to provide all labor, materials and equipment necessary for the new building construction of a hoop building with asphalt pad; one (1) for Clarinda located at 1150 East State Street, Clarinda, IA 51632, and one (1) for Rockwell City located at 27700 Norridge Street, Rockwell City, IA 50579. These items are NOT tied. Both are according to plans and specifications. Work to include:

- Asphalt Pad
- Asphalt Approaches

D. Contract Award:

- Award will be based on the total lump sum amount of bid price shown on the Schedule of Prices. Items are not tied. Bid price will include all requirements listed in Specifications, Drawings and Supplemental Terms to complete this proposed project. The Prime Contractor shall be responsible for taking all sub-bids and for all coordination between trades.

- A single "Prime" contract shall be awarded for all work shown on the Drawings and described in the Specifications including Site work, General construction, Demolition, Plumbing, Mechanical, Energy management and control and Electrical work. The Prime Contractor shall be responsible for taking all sub-bids and for all coordination between trades.

- Protests of award recommendations shall be made in accordance with Paragraph 761--20.4(6)"e", Iowa Administrative Code.

- Contractor shall return all contractual documents within fourteen (14) calendar days from date indicated in contract cover letter. ***If this is not returned within this time frame, contract may be voided and awarded to the next low bidder.***

2.2 Bidders Representatives

A. Site Visit:

It is recommended, but not required, that prospective bidders on this project shall visit the job site prior to submitting a quotation for this work. To view the Clarinda site, contact: Don Herdliska: 712-523-2383; to view the Rockwell City site, contact: Phil Heinlen, phone number 712-297-8222.

- No considerations or revision in the contract price or scope of the project will be considered by the Owner for any item which could have been revealed by a thorough on-site inspection and examination.

B. Conditions of Work:

Bidders must inform themselves fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve successful bidders of their obligation to furnish all material and labor necessary to carry out the provisions of this contract. Insofar as possible, the Contractor, in

carrying out the work, must employ such methods or means as will not cause any interruption of, or interference with the work of any other contractor.

C. Obligation of Bidder:

- At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the drawings, specifications, and other contract documents, including all addenda.
- The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect to their bid.

D. Codes, Laws and Regulations:

The laws of the State of Iowa in relation to and pertaining to public improvements shall apply to this project. All construction, materials and methods shall comply with the State and Local Building Codes and with Local Ordinances, except where plans and specifications establish a higher standard.

E. Licenses, Permits and Inspections

The Vendor shall give all notices and comply with all codes, laws, ordinances, rules and regulations of any public authority having jurisdiction that bears on the performance of its work. The Vendor shall pay for all licenses, permits and inspection fees required for its work. The Vendor must furnish copies of all approved inspection certificates and approvals from authorities having jurisdiction in a timely fashion upon completion of the work.

2.3 Bidding Documents

A. Plans and Specifications:

- The Plans and Specifications are to remain on file at the Iowa DOT Office of Purchasing and Distribution, Purchasing Section, 800 Lincoln Way, Ames, IA 50010. The Iowa DOT shall furnish to the Contractor all copies of Plans and Specifications reasonably necessary for the execution of the work. No deposit is required for Contract Documents.
- In the event of a conflict between the specifications and the drawings, the specifications shall take precedence.

B. Contents of the Contract Documents:

- In case of a discrepancy between contents of the contract documents, the following items listed by descending order shall prevail:

    1. Addendum
    2. Proposal Form
    3. Special Provision
    4. Plans
    5. Supplemental Specifications
    6. Standard Specifications

  Should there be a discrepancy between figures and drawings on any of the

contract documents, the figures shall govern unless they are obviously incorrect.

C. Interpretation of Contract Documents:

- If any person contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the Plans, Specifications or other proposed contract documents, the bidder will submit to the Iowa DOT a written request for an interpretation thereof. Requests for interpretation must be received on or before **1:00 P.M**. **May 26, 2010.**

- The person submitting a request will be responsible for its prompt delivery.

- No interpretation of the meaning of the drawings, specifications, or other pre-bid documents will be made to any bidder orally. Interpretations will be made only by addendum duly issued.

- A copy of such addendum will be mailed or delivered to each person receiving a copy of the contract documents and to such other prospective bidders having requested that they be furnished with a copy of each addendum.

D. Materials and Equipment:

- Names of Manufacturers and vendors listed in the bidding documents are listed for the bidders only. Manufacturers and vendors, in addition to those specifically listed, are acceptable when it is proven to the satisfaction of the Iowa DOT that:

    a. The level of quality proposed is equal to or better than that of the referenced manufacturer/vendor's quality.
    b. The technical characteristics of the proposed product meet or exceed the requirements of the drawings and specifications.
    c. The use of the materials or equipment does not require major revisions of the drawings and specifications to permit their use.

- Any additional cost in other work incurred as a result of these approvals shall be borne by the Contractor, including all costs for modifying other related materials/systems and the cost of any additional engineering or design fees required to accommodate the substitution/approval.

- The Contractor must be confident that a proposed product or material meets or exceeds the requirements shown on the drawings and specifications. It will be the responsibility of the Contractor to verify and demonstrate that a proposed product meets or exceed the drawings and specifications at time of shop drawing reviews. If a proposed product or material is determined to be technically unacceptable as judged by the Iowa DOT, the Contractor shall be required to supply products or materials that meet the requirements required to supply products or materials that meet the requirements stated in the drawings and specifications at no cost increase to the Iowa DOT. Under no circumstances will the Iowa DOT be required to prove that proposed substitutions is not equal to the project requirements. The decision of the Iowa DOT on all requested proposals/substitutions is final.

E. Exceptions/Equals

No substitutions, changes or additions to the request for proposals shall be permitted.

F. Addenda:

- Addenda, if issued, will be mailed to all known plan holders, and acknowledgement of receipt of addenda will be indicated on the bidder's proposal form.
- All addenda so issued shall become part of the contract documents.

2.4 Bidding Procedures

A. Proposed Form:

- Each Bid must be submitted on the Schedule of Prices form included in the packet.

- All bids received by the Iowa DOT, which require allocation of appropriated state funds, are subject to the acceptance of the issuing department of the State of Iowa.

B. Proposal Guaranty:

Each bid must be supported by a Proposal Guaranty in the sum of **$5,000.00 for each project**. The proposal guaranty shall be in the form of a certified check or credit union certified share draft, cashier's check, or bank draft drawn on a solvent bank or credit union. Certified checks or credit union certified share drafts shall bear an endorsement signed by a responsible official of such bank or credit union as to the amount certified. Cashier's checks or bank drafts shall be made payable either to the Contracting Authority or to the bidder and, where made payable to the bidder, shall contain an unqualified endorsement to the Contracting Authority signed by the bidder or his authorized agent.

C. Submitting Proposals:

- Each proposal must be submitted in ink or typewritten and shall be sealed in the envelope provided in the packet.

- Submit bids to The Iowa Department of Transportation, Operations & Finance Division, Office of Purchasing and Distribution, Purchasing Section, 800 Lincoln Way, Ames, Iowa 50010. Bids shall be due on or before **1:00 P.M.**, **June 2, 2010,** and shall be read publicly thereafter.

D. Withdrawal Period:

Prime bidders, subcontractors and material suppliers on this project agree to guarantee their proposal for a period of thirty (30) days after the date of receipt of bids. No bid may be withdrawn during this period.

E. Extension of Contract Period:

The Iowa DOT will grant an extension of the contract period for additional work requiring additional construction time that adds additional work to the controlling item of work.

F. Liquidated Damages:

- Time is an essential of the contract, and it is important that the work be pressed vigorously to completion. The cost per day for liquidated damages is indicated on the Purchasing Proposal form.

- For each calendar day that any work shall remain uncompleted beyond the completion date or any extension granted under Extension of Contract Period, the amount per calendar day specified in the proposal form will be assessed, not as a penalty but as predetermined and agreed upon liquidated damages. If work remains uncompleted on more than one portion for which calendar days and liquidated damages have been specified, the liquidated damages assessed will be the total of the damages per day listed for each uncompleted portion. The Owner shall prepare and forward to the Contractor an invoice or credit change order for such liquidated damages. The final payment shall be withheld until payment of the invoice has been made or the credit change order has been agreed upon.

- Assessment of liquidated damages will be based only on the number of calendar days required to complete the contract beyond the contract completion date, plus authorized extensions.

- The provision for the assessment of liquidated damages for failure to complete work within the contract period does not constitute a waiver of the Owner's right to collect any additional damages other than time delays, which the Owner may sustain by the failure of the Contractor to carry out the terms of the contract.

G. Telegraph or Facsimile Modifications and Bid Closing:

- Bids received prior to the time of opening will be securely kept, unopened. The officer whose duty it is to open them will decide when the specified time has arrived, and no bid received thereafter will be considered.

- Modification of the bid price by telegraph or facsimile of bids already submitted will be considered if received prior to the time set for the opening. The changes shall not reveal the bid price but shall provide the amount to add or subtract to modify the bid so the total amount is not known until the bid is opened.

H. Informalities:

The Owner may waive any informalities or reject any or all bids.

2.5 Consideration of Bids

A. Rejection of Bids:

- The Iowa DOT reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Iowa DOT that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

- Conditional bids will not be accepted.

B. Qualification of Bidder:

The Iowa DOT may make such investigations as they deem necessary to determine the ability of the bidder to perform the required work, and the bidder shall furnish to the Iowa DOT all such information and data for this purpose as the Iowa DOT may request.

2.6 Performance and Payment Bonds

A. Bonds:

Performance bond is not required on contracts for less than $25,000. However, if the Contract is $25,000 or more, the bidder shall furnish bonds covering the faithful performance of 100% of the Contract and the payment of all obligations arising thereunder. One copy of the bond shall be submitted on Iowa Department of Transportation Form 131070. All items must be properly filled in, including Contractor's signature. Resident commission agent or attorney-in-fact must file a copy of the power of attorney.

B. Power of Attorney:

Attorney-in-fact who signs the proposal guaranty, Performance Bond, and Labor and Material Payment Bond must file with each bond a certified and effectively dated copy of the Power of Attorney.

2.7 Notice of Tax Exempt Status

A Sales Tax Exemption Certificate and authorization letter will be issued to the successfully awarded construction contractor for the purchase of building materials, supplies and equipment used in the performance of this construction contract.

The Department of Transportation is exempt from paying sales and use taxes. ***Do not include sales tax in your bid for this project.***

2.8 Labor Regulations

All contractors, before entering into a contract with the Department, must be registered with the Division of Labor in the Iowa Department of Workforce Development (515-281-3606) according to chapter 91C, Code of Iowa 2003.

2.9 Targeted Small Business Program

The 1986 Iowa Legislature enacted legislation relating to procurement from Iowa Targeted Small Businesses. (Iowa Code, Chapter 73. And Iowa Administrative Code rules 820--[01,B] Chapter 2). It is hereby agreed that when entering into a contract with the State of Iowa, the vendor/contractor will take documented steps to encourage participation from TSB's for the purpose of subcontracting and supplying of materials.

A list of Targeted Small Business Contractors is available on the Internet at https://dia.iowa.gov/tsb and click on Search Targeted Small Businesses.

Part 3 Supplementary General Conditions

3.1 The Contractor

A. Guidelines:

- Contractors shall comply with Iowa Occupational Safety and Health Standards as found in 29 CFR Parts 1910 and 1926. Of particular importance are those standards referring to the use of personal protective equipment, fall protection and ventilation.

- Contractor may be required to make available to Iowa DOT at time the apparent low bidder has been determined all Material Safety Data Sheets (MSDS) for all products provided prior to approved contractor and award. These must be faxed to Purchasing 515-239-1538 with cover indicating project the MSDS sheets pertain to. This shall be faxed within two (2) days upon request.

B. Preference:

By virtue of statutory authority, a preference shall be given to Iowa Domestic labor and materials in the construction of this contract work, in accordance with the provision of Chapter 3, Code of Iowa 1993 and any amendments thereto.

C. Guarantee:

The Contractor shall guarantee all work executed under this contract, both as the workmanship and materials, for a period of twelve (12) months after the date of acceptance, except that special guarantee provision specified elsewhere in these Specifications shall take precedence. Neither the final payment nor any provision of the contract documents shall relieve the Contractor of responsibility for faulty materials or workmanship. The Contractor shall remedy any defect thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of the final acceptance. With one month remaining in the guarantee period, the Contractor shall notify the Iowa DOT and set up a complete building walk-through inspection.

- All materials, items of equipment, and workmanship furnished under this division of the specifications shall carry the standard warranty against all defects in material and workmanship. Any fault due to defective or improper material, equipment, or workmanship which may develop, shall be made good, forthwith.

- The Guarantee shall include, but not be limited to the following elements and services:
    a. Repair or replace defective materials, equipment, workmanship and installation that develops within the guarantee period, promptly and to Iowa DOT's satisfaction and correct damage caused in making necessary repairs and replacements, including all other damage done to areas, materials, and other systems resulting from the failure or defect, under guarantee by and at the expense of the Contractor.

    b. Replace material or equipment that requires excessive service during guarantee period, as defined and as directed by the Iowa DOT.

c. Make all service calls, replacements, repairs and adjustments during the guarantee period without cost to the Iowa DOT.

D. Workmanship

Work shall be performed in best, most workmanlike manner by mechanics, skilled and employed continuously in their respective trade. Installation shall be made by the manufacturer or their authorized installer where specified. Unsatisfactory work shall be replaced at Contractor's expense.

E. Clean-Up:

- Throughout the period of construction, the Contractor shall clean up all work and yard areas and keep the area reasonably free of debris, etc., as required for proper protection of the work. Prior to final acceptance, the Contractor shall remove all debris, tools and equipment from the project site.

F. Immunity of Iowa Department of Transportation

The Contractor shall defend, indemnify and hold harmless the Iowa Department of Transportation, and its officials and employees from liability arising out of or resulting from the Contractor's activities at the rest area, its performance or attempted performance of the contract, as well as the Contractor's activities with Sub-Contractors and all other third parties.

G. Suspensions and Debarment.

The Vendor certifies pursuant to 48 CFR Part 9 that neither it nor its principles are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this Contract by any federal Agency or agency. The Vendor certifies that it is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in any contracts with the State of Iowa.

H. Termination Due to Lack of Funds or Change in Law

Notwithstanding anything in this Contract to the contrary, and subject to the limitations set forth below, the Iowa DOT shall have the right to terminate this Contract without penalty and without any advance notice as a result of any of the following:

Adequate funds are not appropriated or granted to allow the Iowa DOT to operate as required and to fulfill its obligations under this Contract.

Funds are de-appropriated, reduced, not allocated, or receipt of funds is delayed, or if any funds or revenues needed by the Iowa DOT to make any payment hereunder are insufficient or unavailable for any other reason as determined by the Iowa DOT in its sole discretion; or

The Iowa DOT’s authorization to conduct its business or engage in activities or operations related to the subject matter of this Contract is withdrawn or materially altered or modified; or

The Iowa DOT's duties programs or responsibilities are modified or materially altered; or

If there is a decision of any court, administrative law judge or an arbitration panel or any law, rule, regulation or order is enacted, promulgated or issued that materially or adversely affects the Agency's ability to fulfill any of its obligations under this Contract.

The Agency shall provide Vendor with written notice of termination pursuant to this section.

3.2 Administration of the Contract

A. Inspection and Supervision:

- All work shall be according to the approved design and shall be under the direct supervision of the Iowa DOT.
- Periodic site inspections will be carried on by the Iowa DOT with the contractor to ensure coordination of the project.
- The owner will provide a list of items requiring inspection prior to or during installation. The Contractor is to give the Owner notice no less than 24 hours in advance of installation.
- The Iowa DOT contact shall be: Daniel Apatiga, Phone No.: 515-239-1627

B. Contractors Construction Schedule:

The successful bidder will, within 10 days after award of contract or at the pre-construction meeting, whichever comes first, submit to the Iowa DOT, Office of Facilities Support, a detailed construction schedule including dates of commencement and completion on each phase of the proposed construction. Upon acceptance of the schedule, the Contractor will be expected to adhere to these dates as proposed.

3.3 Sub Contractors

- Specific attention shall be given by the Contractor to Article 5 of the A.I.A. Document A-201, "The General Conditions of the Contract for Construction".

- The apparent successful contractor for the project shall, within seven (7) calendar days after opening of the bids, furnish the Iowa DOT with a complete list of subcontractors and major material suppliers.

3.4 Contract Period

- The starting and completion dates are stated on the front page of the proposal. The date of completion shall be stated in calendar days on the Contractor's proposal, and if necessary, adjusted by mutual agreement between the Iowa DOT and Contractor prior to executing the contract documents.

- The Iowa DOT realizes that deliveries and condition will have a definite bearing on the completion date. The Iowa DOT will demand diligence in the prosecution of the work, but with good cause and satisfactory past performance by the Contractor, the Iowa DOT may revise that completion date to another mutually-acceptable date, when requested in writing and in good faith by the Contractor.

3.5 Payments and Completion

A. Payments on contract will be made monthly by means of state warrants to the extent of ninety-five percent (95%) of the value of work performed, including acceptable material stored at the building site, as determined by the Engineer.

B. Immediately after signing of Contract, the Contractor shall submit schedule of values for approval on the Contract Breakdown form furnished by the Iowa Department of Transportation. Contractor shall submit an Application for Payment on forms furnished by the Iowa Department of Transportation based on Contract Breakdown.

C. The contractor shall, before the first application, submit to the Iowa DOT a schedule of values of the various parts of the work, aggregating the total sum of the contract, made out in such form as the Iowa DOT may direct and, if required, supported by evidence as to its correctness. This schedule, when approved by the Iowa DOT, shall be used as a basis for requests for payment.

D. Final payment shall be authorized not later than thirty (30) days following the completion and final acceptance of the contract, provided that paragraph 1-3 herein and all other contract requirements have been fulfilled, accepted and approved, where no claims have been filed or following adjudication or release of claims as provided in Chapter 573 of the Code of Iowa.

E. No notification of payment being processed, no payment made to the Contractor, no partial payment, nor the entire use or occupancy of the work by the Iowa DOT shall be held to constitute an acceptance, in whole or in part, by the Iowa DOT prior to making the final payment and acceptance in full completion of the contract.

3.6 Protection of Persons and Property

A. Safety and Health Regulations:

The Contractor, serving in the role of the employer for the project, shall exercise at all times the protection of all persons and property. Contractor shall comply with all requirements of the Occupational Safety and Health Act of 1970, Iowa Bureau of Labor and all applicable state and municipal laws, as well as building and construction codes. It is the Contractor's responsibility to enforce all regulations that apply to this project.

B. Protection of Site:

The Contractor shall furnish all permanent and temporary guards, signs, fencing, shoring, and underpinning and other protection necessary in the performance of the contract and for the necessary protection of all public and private property and shall be responsible for any damage caused by failure to comply with this requirement.

- After building operations are completed, the Contractor shall replace or satisfactorily repair all damaged walks or pavements which shall have become damaged due to operations of this project.

- The Contractor shall take care of all underground pipes, conduits, etc., encountered in the excavations, and protect same from damage until such time as they can be permanently disposed of.

- The Contractor shall continuously maintain adequate protection of all work from damage and shall protect the Owner's property and adjacent property from damage arising in connection with this contract.

3.7 Insurance Requirements

Contractor's Insurance

- It shall be the Contractor's responsibility to have liability insurance covering all of the project operations incident to contract completion and the Contractor(s) must have on file with the Contracting Authority a current "Certificate of Insurance" prior to award of contract. The certificate shall identify the insurance company firm name and address, contractor firm name, policy period, type of policy, limits of coverage, and scope of work covered (single contract or statewide). This requirement shall apply with equal force, whether the work is performed by persons employed directly by the Contractor(s) including a subcontractor, persons employed by a subcontractor(s), or by an independent contractor(s).

- In addition to the above, the Contracting Authority shall be included as an insured party, or a separate owner's protective policy shall be filed showing the Contracting Authority as an insured party.

- The liability insurance shall be written by an insurance company (or companies) qualified to do business in Iowa. For independent contractors engaged solely in the transportation of materials, the minimum coverage provided by such insurance shall be not less than that required by Chapter 325A, Code of Iowa, for such truck operators or contract carriers as defined therein. For all other contractors, subcontractors, independent contractors, and the Contracting Authority, the minimum coverage by such insurance shall be as follows:

    - *Comprehensive General Liability* including Contractual Liability;
    - Contingent Liability; Explosion, Collapse and Underground Drainage
    - Damage; Occurrence Basis Bodily Injury: Broad Form Personal Injury; Broad Form Property Damage.

Bodily Injury

The contractor will purchase and maintain throughout the term of this contract the follow minimum limits and coverage:

- Each person $750,000
- Each accident/occurrence $750,000
- Workers Compensation $750,000
- Statutory Limits $750,000
- Employer's liability $750,000
- Pollution Liability $750,000
- Occupation Disease $750,000

Operations

- Property Damage $250,000 each occurrence

Builders Risk Insurance (Optional):

- Each Contractor holding a valid contract with the Owner shall furnish and pay for builder's risk insurance, providing coverage for at least the following losses: fire, extended coverage, vandalism and malicious damage to materials incorporated in the project, and materials purchased to be incorporated in the project, either stored on or off the permanent job site. If this insurance coverage is not provided, the Contractor shall assume all responsibility for the perils outlined above which may occur prior to project completion and acceptance.

- Failure on the part of the Contractor(s) to comply with the requirements of this Article will be considered sufficient cause to suspend the work, withhold estimates, and to deny the Contractor(s) any further contract awards, as provided in Article 1103.01.

- The Contractor(s) shall require all subcontractor(s) meet the above insurance requirements.

The Certificate of Insurance must include the following;

- Iowa Department of Transportation must be listed as an additional insured
- Proposal Number
- Proposal Description
- Letting Date and
- Contract Period

3.8 Miscellaneous Provisions

A. Iowa State Building Code:

- All construction under this section shall conform to the requirements of the Iowa State Building Code. The provisions of the Iowa State Building Code will be strictly adhered to, and will take precedence over any local Governmental Body Regulations. Work not regulated by the Iowa State Building Code shall be performed in accordance with local Governmental Body Regulations.

- All construction shall conform to the Standard Specifications for Highway and Bridge Construction, Series 2001 where applicable.

B. Discriminatory Practices:

- All contractors or subcontractors working under the terms of this project are prohibited from engaging in discriminatory employment practices as forbidden by the Iowa Civil Rights Act of 1965. These provisions shall be fully enforced, as directed through Executive Order Number 34 dated July 22, 1988. Any breach of the provisions contained in the Iowa Civil Rights Acts of 1965 shall be regarded as a material breach of contract.

- Bidder agrees that if awarded a contract to construct and/or remodel any portion of the project described in these Specifications, neither the contractor nor any subcontractors will engage in any discriminatory employment practices based on race, color, creed, religion of natural origin and that they will in all contracts comply with all statutes of the State of Iowa against discrimination. Failure to do so could be deemed a material breach of contract.

3.9 Public Contract Termination:

The provisions of Iowa Law as contained in Chapter 573A of the Code of Iowa, an Act to provide for termination of contracts for the construction of public improvements when construction or work thereon is stopped because of national emergency, shall apply to and be a part of this Contract, and shall be binding upon all parties hereto, including sub-contractors and sureties upon any bond given or filed in connection herewith.

Iowa Department of Transportation
SPECIFICATIONS
for
Hoop Storage Building

Bidder will provide material and delivery and installation for a clear-span steel frame building with white fabric covers, utilizing 8'-0" high T panels, pre-cast concrete bunker walls for storage of salt and/or sand type mixes, meeting the specifications listed below.

All building widths exceeding 30-feet-wide shall be pre-engineered with appropriate independent engineering stamps. This may be requested prior to award.

Contractor shall verify dimensions in the field prior to construction.

Specifications:

A. Minimum Exterior Fabric Material Cover including Fabric Doors:

1. Fabric for entire building shall be furnished in white color for awarded bid price.

2. The fabric weight for entire building and doors shall be:
   a. a minimum of 12.5 oz/square yard, with a Duraweave II double stack 16x16 weave with clear KDPE coating equivalent to 23 Mil thickness
   b. Nova-Thene RU88X-6 (4 mil) Fabric or equivalent

3. UV protection with a minimum 4.0 mils average coating on interior and exterior side of fabric material cover.

4. Approved Manufacturers for fabric:
   - Cover-All
   - Winkler Canvas Ltd.
   - American Shelters
   - Accu-Steel

5. The fabric cover shall utilize a winch tie-down system with a series of 10,000 lb. with lashing winches and zero-stretch belting.

6. Provide Detailed Warranty Information on Fabric Cover.

B. Minimum Steel Framework:

1. The steel framework shall be fabricated of tubing manufactured from cold-formed steel to meet ASTM A123. Inside and outside must be hot dipped galvanized zinc coating. All manufacture components shall have min 1.7502/ft ^{2}of zinc inside and outside.

2. Steel tubing shall be equivalent to 14 gauge, tensile strength of 55,000. Written certification verifying from the source of the zinc application that the coats meet 1,7502/ft ^{2} Gatorshield or equal can be used as a corrosion resistant.

   All tubing shall follow the specifications below:

- Clear Span Structural Steel Tubing – ASTM A500 / ASTM A513
- Minimum allowable tubing thickness - 14 gauge or .083"
- Minimum 50 KSI Yield – 55 KSI Tensile ASTM A500
- End Wall Framework – Engineered Cold Formed "C", "Z", & "L"
- Minimum allowable thickness – 14 gauge or .083"
- Engineered Cold Formed Sections must be ordered to minimize splices and connections
- End Wall Framework - Galvanized Sheet G-90 Material
- Plate or Bar Stock – ASTM A36
- Bolts, Nuts, and Washers – ASTM A325
- All A325 Connections must use a Retaining Compound
- All Bolts, Anchors, Cables, and accessories to be made from Galvanized Steel

3. All structures shall withstand 90 MPH wind requirements.

4. All welds on steel framework components shall be sandblasted and finished with a molten-zinc corrosion-resistant process to fully restore weld zones to original service life of the steel tubing. All Welds must conform to American Welding Standards.

Buildings Specifications:

A. Sixty Two (62) foot wide x Seventy-Five (75) foot length minimum.

1. Shall be constructed with a truss arch structure with trusses on ten-foot centers.

2. The minimum interior height from the bottom of the concrete wall panels to the bottom of the arch truss shall not be less than 22' 3" or higher in addition to the pre-cast concrete walls height 8'-0".

3. The buildings specified with doors on Schedule of Prices shall have a 18' x 18' fabric roll up door(s) with tracks and a winch operating opening system. The buildings shall have two (2) doors; at each end. **Contractor to provide materials necessary for installation of doors as per existing conditions.**

4. The balance of the door end not covered by the door shall be an eight-foot high wall of pre cast concrete.

5. The upper portion of each end shall be constructed of the same fabric as the cover.

6. The upper portion of the each end shall have a steel end support system.

7. All walls shall be pre-cast concrete.

HOT MIX ASPHALT (HMA) DESIGN CRITERIA

Overview of the HMA Mixture Design Criteria Chart (Table 1)

The HMA Mixture Criteria chart identifies the aggregate, mixture volumetric, and laboratory density requirements for mixtures designed under the gyratory mix design system. The chart is formatted to correspond with the bid item designations. The bid item designations classify each mixture by the maximum 20-year traffic load (ESAL), the intended pavement layer (surface, intermediate, base), the mixture size (based on nominal maximum aggregate size), and the surface layer friction requirement. A designation of "**HMA 3M S ½ L-3**" describes the HMA mixture for up to 3 million ESALs, surface layer, ½-inch mixture size, with level 3 friction aggregate.

The columns to the right of the mixture designations define the required level of compaction (N values) and the maximum or target density (expressed as percent of G_{mm}) associated with each level of compaction. Note that the required density of a given level of compaction varies for different traffic levels and pavement layers. For example, the 1M ESAL surface/intermediate 7-76-117 mixture requires 96 percent of G_{mm} (4.0% air voids) at N-design. The 7-76-117 base mixture for 3M ESALs requires 96.5 percent of G_{mm} (3.5% air voids) at N-design.

The middle columns identify the volumetric properties of the compacted HMA mixture when analyzed at the target air voids at N-design.

The aggregate properties are defined in the right columns. The quality of the aggregate (Type A or B) is further specified in Standard Specifications 4127. The crush value specifies the minimum amount of crushed aggregate required. The Fine Aggregate Angularity and Sand Equivalent values are consensus properties of the fine aggregate portion of the mix. The friction columns specify the minimum amounts of friction quality coarse aggregate (Type 4, 3, 2) as defined in Materials IM T203. The details of the friction criteria are specified in Standard Specification 2303. Table Note 4 defines the allowable quantity of flat and elongated aggregate for all mixtures.

For any specified HMA mixture, the mix design criteria are found by reading across the table. The HMA mixtures are grouped by ESAL levels.

Gradation Requirements

The individual aggregate gradation requirements for HMA mix designers are contained on Form 955.

The combined aggregate shall meet the gradation requirements on Table 2.

VMA Requirements

The minimum VMA requirements are shown on Table 3.

Table 1
HMA MIXTURE DESIGN CRITERIA

Mix Designation	Gyratory Density						Friction [2]			Aggregate [3]			
	N_{ini} - N_{des} - N_{max}	Initial % G_{mm} (max)	Design % G_{mm} (target)	Maximum % G_{mm} (max)	VFA	Film Thickness	Filler: Binder	Type 4 (min)	Type 3 (min)	Type 2 (min)	Quality Type	Crush (min)	FAA (min)	Sand Equiv. (min)
HMA 100K S-I-B	7 - 68 - 104	92.5	97.0	98.5	75-85	8.0-13.0	0.6-1.4				B [1]	45 [1]	—	40
HMA 300K S-I	7 - 68 - 104	92.0	96.5	98.0	70-80	8.0-13.0	0.6-1.4				B [1]	45 [1]	—	40
HMA 300K B	7 - 68 - 104	92.5	97.0	98.5	75-85									
HMA 1M S L-4	7 - 76 - 117	90.5	96.0	98.0	65-78	8.0-15.0	0.6-1.4	50			A [1]	60 [1]	40	40
HMA 1M S														
HMA 1M I											B [1]	45 [1]		
HMA 1M B	7 - 68 - 104	92.0	96.5	98.0	70-80						B [1]	45 [1]	—	
HMA 1M B (shld pav sep)	7 - 68 - 104	92.0	97.0	98.0	75-85						B [1]	45 [1]	—	
HMA 3M S L-4	7 - 86 - 134	89.5	96.0	98.0	65-78	8.0-15.0	0.6-1.4	50			A	75	40	40
HMA 3M S L-3								80	45	(25)				
HMA 3M S														
HMA 3M I												60		
HMA 3M B	7 - 76 - 117	90.5	96.5	98.0	65-78						B	45		
HMA 10M S L-3	8 - 96 - 152	89.0	96.0	98.0	65-78	8.0-15.0	0.6-1.4	80	45	(25)	A	75	43	45
HMA 10M I														
HMA 10M B	7 - 86 - 134	89.5	96.0	98.0	65-78						B	75	40	
HMA 30M S L-3	8 - 109 - 174	89.0	96.0	98.0	65-75	8.0-15.0	0.6-1.4	80	45	(25)	A	85	45	45
HMA 30M S L-2								80		25				
HMA 30M I														
HMA 30M B	8 - 96 - 152	89.0	96.0	98.0	65-75						B	75	40	
HMA 100M S L-2	9 - 126 - 204	89.0	96.0	98.0	65-75	8.0-15.0	0.6-1.4	80		25	A	85	45	50
HMA 100M I														
HMA 100M B	8 - 109 - 174	89.0	96.0	98.0	65-75						B	75	43	

Note (1) On local agency projects, the minimum percent crushed and quality type shown above shall be used unless specified in plans.
Note (2) See Iowa DOT Standard Specification 2303.02
Note (3) Flat & Elongated 10% maximum at a 5:1 ratio.

Table 2

Aggregate Gradation Control Points								
	Mix Size - Control Points (% passing)							
	1 inch (25 mm)		3/4 inch (19 mm)		1/2 inch (12.5 mm)		3/8 inch (9.5 mm)	
Sieve Size	**min.**	**max.**	**min.**	**max.**	**min.**	**max.**	**min.**	**max.**
1 1/2 inch (37.5 mm)	100							
1 inch (25 mm)	90	100	100					
3/4 inch (19 mm)		90	90	100	100			
1/2 inch (12.5 mm)				90	90	100	100	
3/8 inch (9.5 mm)						90	90	100
No. 4 (4.75 mm)								90
No. 8 (2.36 mm)	19	45	23	49	28	58	32	67
No. 16 (1.18 mm)(1)				28		32		
No. 30 (600 mm)(2)				24		25		
No. 200 (75 mm)	1	7	2	8	2	10	2	10

(1) Only applies to surface and intermediate mixtures for HMA 30M and above.
(2) Only applies to surface and intermediate mixtures for HMA 10M.

Table 3

Minimum VMA Criteria(1)				
	Mix Size			
Mix Designation	**1 inch (25 mm)**	**3/4 inch (19 mm)**	**1/2 inch (12.5 mm)**	**3/8 inch (9.5 mm)**
HMA 100K	12.0	13.0	14.0	15.0
HMA 300K				
HMA 1M				
HMA 3M				
HMA 10M				
HMA 30M	11.5	12.5	13.5	14.5
HMA 100M				

(1) Applies to all layers in the pavement structure (surface, intermediate and base).

Section 2303. Hot Mix Asphalt Mixtures

2303.01 DESCRIPTION.

A. Design, produce, place, and compact HMA mixtures. Use proper quality control practices for the construction of surface, intermediate, or base course on a prepared subbase, base, or pavement to the dimensions specified in the contract documents.

B. A surface course is the upper lift for a wearing surface of a designated thickness. An intermediate course is the next lower lift or lifts of a designated thickness. Use intermediate course mixtures for leveling, strengthening, and wedge courses. A base course is the lift or lifts placed on a prepared subgrade or subbase.

2303.02 MATERIALS.

Use materials meeting the following requirements:

A. Asphalt Binder.
The Performance Graded asphalt binder, PG XX -XX, will be specified in the contract documents to meet the climate, traffic, and pavement conditions. Use asphalt binder meeting the requirements of Section 4137.

B. Aggregates.

1. **Individual Aggregates.**
   - **a.** Use virgin mineral aggregate as specified in Materials I.M. 510 and meeting the requirements of Section 4127.
   - **b.** When frictional classification of the coarse aggregate is required, the contract documents will specify the friction level and location. Furnish friction aggregate from sources identified in Materials I.M. T203.
     - **1) Friction Classification L-2.**
       Use a combined aggregate such that:
       - At least 80% of the combined aggregate retained on the No. 4 (4.75 mm) sieve is Type 4 or better friction aggregate, and
       - At least 25% of the combined aggregate retained on the No. 4 (4.75 mm) sieve is Type 2 or better friction aggregate.
     - **2) Friction Classification L-3.**
       Use a combined aggregate such that:
       - At least 80% of the combined aggregate retained on the No. 4 (4.75 mm) sieve is Type 4 or better friction aggregate, and
       - At least 45% of the combined aggregate retained on the No. 4 (4.75 mm) sieve is Type 3 or better friction aggregate, or if Type 2 is used in place of Type 3, at least 25% of the combined aggregate retained on the No. 4 (4.75 mm) sieve is Type 2.
     - **3) Friction Classification L-4.**
       Use a combined aggregate such that at least 50% of the combined aggregate retained on the No. 4 (4.75 mm) sieve is Type 4 or better friction aggregate.

2. **Blended Aggregates.**
   - **a.** Use a blended aggregate meeting the combined aggregate requirements in Materials I.M. 510.
   - **b.** When mixtures include RAP, use a blended mineral aggregate gradation consisting of a mixture of RAP aggregate combined with virgin aggregate.

C. Recycled Asphalt Pavement.

1. RAP is salvaged asphalt pavement. Use RAP from a source designated in the contract documents, or furnish Classified RAP or Unclassified RAP from the Contractor's stockpile. The designations Classified and Unclassified are exclusively for the use of RAP in HMA.
   - **a. Classified RAP.**
     - **1)** Classified RAP is from a documented source with the aggregate meeting the appropriate quality requirements in Materials I.M. 510, and properly stockpiled.

2) Classified RAP may be used in the base and intermediate mixtures, and in surface mixtures (unless stated otherwise in the contract documents), for which the RAP aggregate qualifies. The surface course may contain up to 15% Classified RAP. The Contractor may use more than 15% of Classified RAP for the surface course when there is quality control sampling and testing of the RAP meeting the requirements in I.M. 505. Asphalt binder contributed by the RAP is limited to no more than 30% of the total asphalt binder in the surface mix.

b. Unclassified RAP.

1) RAP is designated as Unclassified RAP if it is:
   - Stockpiled RAP not meeting the requirements of Classified RAP, or
   - RAP from an unknown source.
2) When an Unclassified RAP stockpile is characterized by sampling and testing for mix design, do not add material to the stockpile until the project is completed.
3) For Interstate or Primary projects, HMA base and shoulder mixtures may contain up to 10% Unclassified RAP. For Primary projects, intermediate mixtures for 1,000,000 ESALs or less may contain up to 10% Unclassified RAP. HMA base, intermediate, and shoulder mixtures for all other projects may contain up to 10% Unclassified RAP. There will be no friction aggregate credit or aggregate crushed particles credit for Unclassified RAP.

2. Unless otherwise stated in the contract documents, identify each RAP stockpile and document Classified RAP stockpiles as directed in Materials I.M. 505. Do not add material to a Classified RAP stockpile without the approval of the District Materials Engineer. Include the following information when documenting Classified RAP material in a stockpile for future use in HMA:
   - Identification of the project from which the material was removed,
   - Mix data from the original project including mixture type, aggregate classification, location and depth in the pavement structure,
   - Extracted gradation information, if available, and
   - Description of stockpile location and quantity.

3. The Engineer may reject a RAP stockpile for non-uniformity based on visual inspection. Work the stockpiles in such a manner that the materials removed are representative of a cross section of the pile.

4. Place stockpiles of RAP on a base sufficient to prevent contamination, as directed in Materials I.M. 505. Do not use RAP stockpiles containing concrete chunks, grass, dirt, wood, metal, coal tar, or other foreign or environmentally restricted materials. RAP stockpiles may include PCC (not to exceed 10% of the stockpile) from patches or composite pavement that was milled as part of the asphalt pavement.

5. When RAP is taken from a project, or is furnished by the Contracting Authority, the contract documents will indicate quantity of RAP expected to be available and test information, if known. Salvage this material. Unless otherwise specified in the contract documents, RAP not used in HMA becomes the property of the Contractor.

6. For HMA mix design purposes, the Contracting Authority will test samples of the RAP. The aggregate gradation and amount of asphalt binder in the RAP will be based on the Contracting Authority's extraction tests. When the amount of RAP binder exceeds 20% of the total asphalt binder, change the asphalt binder grade as directed in Materials I.M. 510.

D. Hot Mix Asphalt Mixture.

1. The job mix formula (JMF) is the percentage of each material, including the asphalt binder, to be used in the HMA mixture. Ensure the JMF gradation is within the control points specified for the particular mixture designated. Use the JMF to establish a single percentage of aggregate passing each required sieve size.

2. The basic asphalt binder content is the historical, nominal mixture asphalt binder content, expressed as percent by weight (mass) of the asphalt binder in the total mixture. Apply the values in Table 2303.03-1, based on mixture size and type.

3. If the asphalt binder demand for the combination of aggregates submitted for an acceptable mix design exceeds the basic asphalt binder content (see Table 2302.02-1) by more than 0.75%, include an economic evaluation with the mix design. Base this evaluation on past job mix history, possible aggregate proportion changes, and aggregate availability and haul costs for any changes or substitutions considered.

Table 2303.02-1: Basic Asphalt Binder Content (%)

Size	Aggregate Type	1 inch (25 mm)	3/4 inch (19 mm)	1/2 inch (12.5 mm)	3/8 inch (9.5 mm)
Intermediate and Surface	Type A	4.75	5.50	6.00	6.00
Intermediate and Surface	Type B	5.25	5.75	6.00	6.25
Base	Type B	5.25	6.00	6.00	6.25

4. Use HMA mixture design meeting gyratory design and mixture criteria corresponding to the design level specified in the contract documents. The Engineer may approve the substitution of any mixture which meets requirements for a higher mixture than specified in the contract documents, at no additional cost to the Contracting Authority.

5. Use 1,000,000 ESAL HMA base mixture for shoulders placed as a separate operation. For outside shoulders on Interstate projects, the Contractor has the option to substitute the mainline intermediate or surface mixture for a specified base mixture, at the Contractor's expense.

6. Prepare gyratory HMA mixture designs for base, intermediate, and surface mixtures. Follow the procedure outlined in Materials I.M. 510. Submit mix design complying with Materials I.M. 510.

7. Use gyratory compacter for design and field control meeting the AASHTO protocol for Superpave gyratory compactors. Compactors for which compliance with this protocol is pending may be used at the discretion of the District Materials Engineer.

E. Other Materials.

1. **Tack Coat.**
   Tack coat may be SS-1, SS-1H, CSS-1, or CSS-1H. Do not mix CSS and SS grades. RC-70 and MC-70 may also be used after October 1, at the Contractor's option.

2. **Anti-strip Agent.**
   a. On Primary highways designed for over 10,000,000 ESALs and Interstate highways, perform an AASHTO T 283 moisture sensitivity evaluation of the proposed HMA mixture design.
   b. On all other Primary highways, perform an AASHTO T 283 moisture sensitivity evaluation of the proposed HMA mixture design if 25% or more of the plus No. 4 (4.75 mm) (virgin and RAP) aggregates or more than 40% of the total (virgin and RAP) aggregates is:
      - Quartzite.
      - Granite.
      - Other siliceous aggregate (not a limestone or dolomite) which is obtained by crushing from ledge rock.
   c. Anti-strip agent will not be required for base repair, patching, or temporary pavement.
   d. The following apply when an AASHTO T 283 analysis is required:
      1) **The Contractor's results equal or exceed 90% tensile strength ratio (TSR).** Submit mix design sample to the Central Materials Laboratory for testing. If the Central Laboratory results verify the Contractor's results, no anti-strip agent will be required and no further testing will be required unless substantial mix proportion changed from the original design are made.
      2) **Either the Contractor's results equal or exceed 80% but are less than 90%, or the Central Laboratory TSR results do not verify the Contractor's results.**

Obtain additional sample for AASHTO T 283 testing during the initial placement of the plant produced mix. Obtain the additional sample from a test strip, if available, or during the initial approximately 500 tons (500 Mg) of mix. Obtain sample from an area without anti-strip agent. This sample will be used to determine acceptability of the plant produced mixture for moisture sensitivity. For production taking place after this initial 500 tons (500 Mg), add anti-strip agent to the mixture until results are obtained from the Central Laboratory. Payment for the anti-strip agent will be made according to Article 2303.05, D. If Central Laboratory results on mixture without anti-strip confirm acceptability, anti-strip agent will not longer be required from the time of notification.

3) **The Contractor's results fall below 80%.**
Anti-strip will be required.

e. Use one of the following anti-strip agents:

1) **Hydrated Lime.**
Meet the requirements of AASHTO M 303, Type I. Do not apply Section 4193. Hydrated lime will not be considered part of the aggregate when determining the job mix formula and the filler/bitumen ratio.

2) **Liquid Anti-strip Additives.**
For each JMF, obtain approval for liquid anti-strip additives blended into the binder. Approval will be based on the following conditions:

a) The asphalt binder supplier provides test results that the additive does not negatively impact the asphalt binder properties, including short term and long term aged properties.

b) The design is to establish the optimum additive rate when comparing the dry strength of specimens prepared with asphalt binder not containing the anti-strip additive to conditioned specimens prepared with asphalt binder containing the anti-strip additive. See Materials I.M. 510 for additional information.

c) A change in the source of asphalt binder, liquid anti-strip, or aggregates will require a re-evaluation of the AASHTO T 283 test. When there is a significant change in the aggregate proportions, the Engineer may require a re-evaluation of the AASHTO T 283 test.

3) **Polymer-based Liquid Aggregate Treatments.**
For each JMF, obtain approval for polymer-based liquid aggregate treatments. Approval will be based on the following conditions:

a) The design establishes the optimum additive rate when comparing the dry strength of specimens prepared without the anti-strip additive to conditioned specimens prepared with asphalt binder containing the anti-strip additive. See Materials I.M. 510 for additional information.

b) A change in the source of asphalt binder, liquid additive treatment, or aggregates will require a re-evaluation of the AASHTO T 283 test.

3. **Sand for Tack Coats.**
Use sand meeting the requirements of Gradation No. 1 of the Aggregate Gradation Table in Section 4109.02.

4. **Fabric Reinforcement.**
Use fabric reinforcement meeting the requirements of Article 4196.01, B, 4.

2303.03 CONSTRUCTION.

A. General.

1. The Contractor is responsible for all aspects of the project.

2. Provide quality control management and testing, and maintain the quality characteristics specified.

3. Apply Quality Management - Asphalt (QM-A) to contracts with HMA quantities of 5000 tons (5000 Mg) or greater and all Interstate contracts. Follow the procedures and meet the criteria established in Articles 2303.02 and 2303.03, B; Section 2521; and Materials I.M. 510 and 511.

4. For contracts with less than 5000 tons (5000 Mg), the Engineer will be responsible for quality control. The Contractor is responsible for the mix design. This does not change the mix requirements from gyratory to Marshall, unless specified in the contract documents.

B. Equipment.

Provide sufficient equipment of the various types required to produce, place, and compact each layer of HMA mixture as specified. Use equipment meeting the requirements of Section 2001 with the following modifications:

1. **Plant Calibration.**
   - **a.** Calibrate each plant scale and metering system before work on a contract begins. Use calibration equipment meeting the manufacturer's guidelines and Materials I.M. 508.
   - **b.** The Engineer may waive calibration of permanent plant scales when a satisfactory operational history is available. The Engineer may require any scale or metering system to be recalibrated if operations indicate it is necessary.
   - **c.** Make calibration data available at the plant.
   - **d.** Calibrate each aggregate feed throughout an operating range wide enough to cover the proportion of that material required in the JMF. Make a new calibration each time there is a change in size or source of any aggregate being used.
   - **e.** For continuous and drum mixing plants, calibrate the asphalt metering pump at the operating temperature and with the outlet under pressure equal to that occurring in normal operations.

2. **Paver.**
   Apply Article 2001.19. Spreaders described in Article 2001.13, D, may be used to place paved shoulders. Spreaders used to place the final lift of paved shoulders shall meet additional requirements of Article 2001.19.

3. **Rollers.**
   - **a.** For initial and intermediate rolling, use self-propelled, steel tired, pneumatic tired, or vibratory rollers meeting the requirements of Article 2001.05, B, C, or F. Their weight (mass) or tire pressure may be adjusted when justified by conditions.
   - **b.** For finish rolling, use self-propelled, steel tired rollers or vibratory rollers in the static mode that meet the requirements of Article 2001.05, B, or F.

4. **Scales.**
   Apply Article 2001.07, B, to paving operations regardless of the method of measurement.

C. HMA Construction.

1. **Maintenance of the Subgrade and Subbase.**
   - **a.** Maintain completed subgrade and subbase to the required density, true cross section, and smooth condition, prior to and during subsequent construction activities.
   - **b.** If rutting or any other damage occurs to the subgrade or subbase as a result of hauling operations, immediately repair the subgrade and subbase. Such repair will include, if necessary, removal and replacement, at no additional cost to the Contracting Authority.
   - **c.** Should traffic by others authorized to do work on the project be specifically permitted by the Engineer to use loads which exceed the Contractor's established limit, the Contracting Authority will pay repair costs for repairs directed by the Engineer.

2. **Preparation of Existing Surfaces.**
   - **a. Cleaning.**
     Clean and prepare existing surface according to Article 2212.03, B, 1.
   - **b. Tack Coats.**
     - **1)** Apply tack coats when the entire surface area on which the coat is to be applied is free of moisture. Do not apply them when the temperature on the surface being covered is less than 25°F (-4°C).
     - **2)** Place a tack coat to form a continuous, uniform film on the area to be covered. Unless directed otherwise, spread the tack coat at an undiluted rate of 0.02 to 0.05 gallon per square yard (0.1 to 0.2 L/m^2). The tack coat may be diluted with water to improve application.

3) Allow tack coat to adequately cure prior to placement of HMA to assure bond to the underlying surface and avoid damage of the HMA being placed. If tack coat surface becomes dirty from weather or traffic, thoroughly clean and, if necessary, retack. A light application of sand cover may also be required, but this is anticipated only for excessive application rates, breakdowns, and short sections remaining at the end of a day's run.
4) On highways being constructed under traffic, use procedures that provide safety and convenience to the public (without soiling their vehicles) as controlling factors. Limit tack coat application lengths to minimize inconvenience to the public. Keep applications within the hot mixture placing work area that is controlled by flaggers at each end. Plan applications so they will be covered with hot mixture when the work area is opened to traffic at the end of the day's work.
5) Tack the vertical face of exposed, longitudinal joints as a separate operation at a rate from 0.10 to 0.15 gallon per square yard (0.5 to 0.7 L/m^2). Tack before the adjoining lift is placed. Lightly paint or spray vertical surfaces of all fixtures, curbs, bridges, or cold mixture with which the hot mixture will come in contact to facilitate a tight joint with the fresh mixture.

c. **Fabric Reinforcement.**
1) When fabric reinforcement is required, the locations will be designated in the contract documents.
2) Do not place fabric on wet or damp surfaces, or when the road surface is less than 50°F (10°C).
3) Apply fiberglass fabric only with an adhesive recommended by the manufacturer.
4) Place fabrics with an adhesive backing according to the manufacturer's recommendations.
5) Place other fabrics with a heavy coat of the same asphalt binder grade used in the HMA and applied at a rate of 0.20 to 0.25 gallons per square yard (0.9 to 1.1 L/m^2). Place at a temperature between 295°F and 315°F (145°C and 160°C).
6) Place fabric reinforcement according to the contract documents (full width or individual crack or joint treatment). Place fabric immediately following the adhesive or asphalt binder placement under the fabric. Placement may be by hand or by a mechanical method designed for this purpose.
7) Take precautions to avoid wrinkles in the fabric and to ensure that air bubbles are removed without breaking the fabric. Cut and lap wrinkles or folds which cannot be removed by brushing in order to provide a smooth surface.
8) Additional adhesive or asphalt binder may be required to produce a tight, bonded surface. When applied full lane width, use a minimum 12 inch (300 mm) transverse and longitudinal lap.
9) Avoid applying tack coat over longitudinally placed fabric.
10) To avoid damage to fabric, do not allow traffic over fabric during placement and during curing of the adhesive material. A light application of HMA mix may be hand sprinkled on the fabric to prevent damage from necessary equipment traffic.
11) When directed by the Engineer, repair damaged or soiled fabric prior to HMA overlay, at no additional cost to the Contracting Authority. The Engineer may also require sanding during this period, at no additional cost to the Contracting Authority.

3. **Handling, Production, and Delivery.**
Ensure plant operation complies with the following requirements:

a. **Handling Mineral Aggregate and RAP.**
1) Keep various aggregate products used separate from one another. Make adequate provisions to prevent intermingling.
2) Handle stockpiling and processing in a manner to ensure uniform incorporation of the aggregate into the mix.
3) Feed various aggregates separately in their proper proportions using feeders to the cold elevator. Feed them at a rate to permit correct and uniform temperature control of heating and drying operations.

b. **Handling Asphalt Binder.**
Bring asphalt binder to a temperature of 260°F to 330°F (125°C to 165°C) before being measured for mixing with the aggregates. The temperature between these limits may be further regulated according to the characteristics of the mixture, method of proportioning, and viscosity of the asphalt binder. Heat modified asphalt binder according to the supplier's recommendations.

c. **Handling Anti-strip Agents.**

1) **Hydrated Lime.**

Accurately proportion lime using a method acceptable to the Engineer.

a) **Added to a Drum Mixer.**

(1) Add hydrated lime at the rate of 0.75% by weight (mass) of the total aggregate (virgin and RAP) for Interstate and Primary projects. Add hydrated lime to a drum mixer using one of the following methods:

(a) Add to virgin aggregate on the primary feed belt, as a lime water slurry.

(b) Thoroughly mix with the total combined aggregate if the aggregate contains at least 3% total moisture.

(2) Alternative methods for mixing will be allowed only with the Engineer's approval. Do not introduce hydrated lime directly into a drum mixer by blowing or auguring.

b) **Added to a Batch Plant.**

Add hydrated lime at the rate of 0.5% by weight (mass) of the total aggregate (virgin and RAP) for Interstate and Primary projects. Introduce it to a batch plant using one of the methods below. In any case, introduce the lime prior to the start of the dry mix cycle.

(1) Place on the recycle belt which leads directly into the weigh hopper.

(2) Add directly into the pugmill.

(3) Add directly into the hot aggregate elevator into the hot aggregate stream.

c) **Added to the Aggregate Stockpile.**

Add hydrated lime at a rate established by the AASHTO T 283 test. The instructions for establishing the rate are discussed in Materials I.M. 510. Add it to the source aggregates defined in Article 2303.02, E, 2, thoroughly mixed with sufficient moisture to achieve aggregate coating, and then place in the stockpile.

2) **Liquid.**

a) When liquid anti-strip additives are used, employ equipment complying with the anti-strip manufacturer's recommended practice to store, measure, and blend the additive with the binder.

b) The additive may be injected into the asphalt binder by the asphalt supplier or the Contractor. If the Contractor elects to add the liquid anti-strip agent, they assume the material certification responsibilities of the asphalt binder supplier. Ensure the shipping ticket reports the type and amount of additive and time of injection.

c) Ensure the asphalt supplier provides the Contactor and Engineer with the shelf life criteria defining when the anti-strip additive maintains its effectiveness. Do not use binder that has exceeded the shelf life criteria.

d) When using polymer-based aggregate treatment, comply with the manufacturer's recommended specifications and guidelines.

d. **Production of Hot Mix Asphalt Mixtures.**

1) Regulate the exact proportions of the various materials to be within the limits specified to produce a satisfactory bituminous coating and mixture. First dry mix the aggregates, then add the asphalt binder.

a) In batch plants, add the asphalt binder in an evenly spread sheet over the full length of the mixer box.

b) In continuous plants, spray the asphalt binder evenly into the aggregate within the first 30% of the length of the mixer box using a positive pressure spray.

c) In drum mixing plants, spray the asphalt binder evenly into the aggregate using a positive pressure spray.

2) Coating aids may be added with the Engineer's approval.

3) Operate the mixer so that the mixture is of consistently uniform temperature, and when discharged from the mixer does not vary more than 20°F (11°C).

4) Unless the Engineer approves, do not allow the temperature of the mixtures to exceed 330°F (165°C).

5) Use a rate of production that will not exceed the manufacturer's rated capacity for the mixer and will provide uniform coating. For batch mixers, use a dry mixing time of no less than 5 seconds and a wet mixing time of no less than 25 seconds. For continuous mixers, use a mixing time of no less than 30 seconds.

6) Control handling and manipulation of the hot mixture from the mixer to the final spread on the road in order to maintain uniform composition and minimize segregation of coarser particles. Minimize segregation to the extent that it cannot be

visibly observed in the compacted surface. Apply only approved release agents to trucks and equipment, as specified in Article 2001.01.

7) Ensure mixture temperature allows for the specified compaction and density to be attained. Do not discharge HMA into the paver hopper when its temperature is less than:
   - 245°F (120°C) for a nominal layer thickness of 1 1/2 inches (40 mm) or less, or
   - 225°F (110°C) for a nominal layer thickness of more than 1 1/2 inches (40 mm).

8) Except for an unavoidable delay or breakdown, provide continuous and uniform delivery of hot HMA to any individual spreading unit. Deliver at a rate sufficient to provide as continuous an operation of the spreading unit as practical. Keep the paver hopper sufficiently full at all times to prevent non-uniform mixture flow to the screed.

4. Placement.

a. Clean the surface of each layer according to Article 2212.03, B, 1. If necessary, retack to provide bond with the succeeding course.

b. Prior to placing the final lift, correct bumps or other significant irregularities that appear or are evident in the intermediate course or other lower course.

c. Do not place HMA mixtures under the following circumstances:

1) On a wet or damp surface.

2) When road surface temperature is less than that shown in Tables 2303.03-1 and 2303.03-2.

Table 2303.03-1: Base and Intermediate Course Lifts of HMA Mixtures

Nominal Thickness - inches (mm)	Road Surface Temperature, °F (°C)
1 1/2 (40)	40 (4)
2 - 3 (50 - 80)	35 (2)
Over 3 (Over 80)	25 (-4)

Table 2303.03-2: Surface Course Lifts of HMA Mixtures

Nominal Thickness - inches (mm)	Road Surface Temperature, °F (°C)
1 (30)	50 (10)
1 1/2 (40)	45 (7)
2 and greater (50 and greater)	40 (4)

3) After November 15, except with the Engineer's approval.

d. The Engineer may further limit placement if, in the Engineer's judgment, other conditions are detrimental to quality work.

e. When placing the mixture, maintain a finishing machine forward speed that will provide a continuous uniform operation. Minimize stopping.

f. Use a wire or string line to guide finishing machine and maintain alignment. Correct edge alignment irregularities immediately.

g. The contract documents will show the total thickness to be placed. Spread the mixture at a rate such that, when compacted, the layer(s) will be the required thickness.

h. Base the minimum layer thickness on Table 2303.03-3.

Table 2303.03-3: Minimum Lift Thickness

Design Mix Size - inches (mm)	Minimum Lift Thickness - inches (mm)
3/8 (9.5)	1 (25)
1/2 (12.5)	1 1/2 (40)
3/4 (19)	2 (50)
1 (25)	3 (75)

i. Ensure the compacted thickness of the top layer does not exceed 3 inches (75 mm). This restriction does not apply to HMA shoulders.

j. The maximum compacted thickness of lower layers may exceed 4 inches (100 mm) if it is demonstrated that the thicker layers have satisfactory density. The riding characteristics of

the thicker layers must be within conformance to that expected from a 3 inch (75 mm) layer.

k. Complete each layer to full width before placing succeeding layers.

l. While operating on the road surface, do not use kerosene, distillate, other petroleum fractions, or other solvents, for cleaning hand tools or for spraying the paver hopper. Do not carry containers of cleaning solution on or near the paver. When a solvent is used, do not use the paver for at least 5 hours after cleaning. Collect and remove all cleaning materials and cleaning residue from the project and plant site. The cleaning material and residue becomes the property of the Contractor.

m. Whenever practical, spread mixtures using a finishing machine. Irregular areas may be spread by hand. Spread the hot mixture uniformly to the desired depth with hot shovels and rakes. Do not dump loads faster than they can be spread properly. Do not allow workers to stand on the loose mixture while spreading.

n. After spreading, carefully smooth to remove all segregated coarse aggregate and rake marks. Use rakes and lutes designed for use on HMA mixtures.

o. Unless stated elsewhere in the contract documents, when placing two adjacent lanes, pave no more than 1 day of rated plant production before paving the adjacent lane(s). Place the adjacent lane to match the first lane during the next day of plant production.

p. Do not spread more mixture than can be compacted in the specified working hours of the same working day.

q. At the close of each working day, clear all construction equipment from the roadbed.

r. Prior to opening a lane to traffic, place fillets or full width granular shoulders according to Article 2121.03, C, 4. Place the material adjacent to and equal in thickness to the resurfacing. Fillet removal is incidental to the HMA mixture.

5. **Compaction.**

a. **General.**

1) Promptly and thoroughly compact each layer. Use mechanical tampers for areas inaccessible to the rollers.

2) Use a rolling procedure and compactive effort that will produce a surface free of ridges, marks, or bumps. Obtain the Engineer's approval for the rolling procedure and compactive effort.

b. **Class I Compaction.**

Intended for use on Interstate highways, and most Primary and Secondary highways. For Class I compaction, the roadway density (percent of laboratory density) will be based on the density obtained from the Quality Control Program for that day's mixture.

1) **Class IA Compaction.**

a) Use Class IA compaction for intermediate and surface courses for the traffic lanes of:

- Interstate highways,
- Interstate-to-Interstate ramps, and
- Primary highways as specified.

b) Compact to a minimum of 96% of laboratory density. Do not exceed 8% average air void level for roadway density specimens.

2) **Class IB Compaction.**

a) Use Class IB compaction for:

- All Interstate and Primary base courses,
- Primary travel lane intermediate and surface courses when Class IA compaction is not specified, and
- Primary ramps connecting to Interstate and Primary highways when Class IA compaction is not specified.

b) Compact to a minimum of 95% of laboratory density. Do not exceed 8% average air void level for roadway density specimens.

3) **Class IC Compaction.**

a) Use Class IC compaction for:

- HMA base widening,
- Shoulder resurfacing when specified,
- Traffic lanes of Secondary highways, and
- Any other traffic lanes when Class IA and IB are not specified.

b) Compact to a minimum of 94% of laboratory density. Do not exceed 8% average air void level for roadway density specimens.

4) **Test Strip Construction for Class IA and IB Compaction.**

a) For the purpose of evaluating properties of the HMA mixtures and for evaluating an effective rolling pattern:
   (1) For Class IA compaction, construct a test strip at the start of intermediate course placement.
   (2) For Class IA and IB compaction, construct a test strip prior to the start of surface course placement.
b) For multiple lifts using the same mix requiring Class IA compaction, when the thickness of the second lift varies from the first lift by 1 1/2 inches (40 mm) or more, perform a test strip for the second lift.
c) When the contract documents specify both intermediate and surface courses, place a surface course test strip in lieu of intermediate mix in a section of intermediate course prior to actual surface course placement.
d) Apply the test strip to each mixture which has a plan quantity of at least 3000 tons (3000 Mg).
e) The quantity of HMA mixture subject to Class IA compaction, produced and placed for test strip production, will be limited to:
   (1) 750 tons (750 Mg) for lift thicknesses of 2 inches (50 mm) or less.
   (2) 1000 tons (1000 Mg) for lift thicknesses greater than 2 inches (50 mm).
f) After test strip placement, suspend further mixing and laydown operations until the laboratory test results of the plant produced mixture and core densities are available.
g) Only one test strip will be allowed for each mixture. The Engineer may require additional test strips if a complying HMA mixture or rolling pattern was not established.
h) Use procedures and documentation during test strip construction that allow the Engineer and Contractor to confirm mixture design properties and effectiveness of compaction procedures.
i) Use test strip production control that meets the requirements of Article 2303.03, D, 3, c. The number of density core samples obtained for the test strip will be increased by one. The low core result will not be used in the Quality Index (Q.I.) formula for payment for the test strip quantity.

c. **Class II Compaction.**
Intended for paved shoulders, temporary crossovers, onsite detours, and other situations where Class I is not specified.
1) For all rollers, make initial contact with the hot mixture using the power driven wheels or drum.
2) Perform initial rolling at a temperature so the mixture will compact without excessive distortion. Except on longitudinal joints and super-elevated curves, begin rolling with the initial roller at the outer edges of the pavement. With each successive pass, progress inward toward the center. For each reverse trip, lap all but 4 to 6 inches (100 to 150 mm) of the previous track. When reversing direction, stop the initial roller at an angle with the longitudinal direction.
3) Following the initial rolling, give the layer an intermediate rolling with a pneumatic tired roller before the temperature falls below 225°F (110°C). Cover the area no less than six times with the intermediate roller.
4) Use a finish, steel tired roller to smooth out all marks and roughness in the surface.
5) For areas inaccessible to rollers, use mechanical tampers or other approved compaction methods.

6. **Joints and Runouts.**
a. Construct longitudinal joints for courses on resurfacing projects directly above the longitudinal joint in the existing pavement. Limit the offset distance between longitudinal joints in succeeding full depth HMA paving courses to 3 inches (75 mm) or less. Adjust hot mixture spreading along longitudinal joints to secure complete joint closure and full compression of the mixture with a smooth surface and joint after compaction.
b. Separate transverse construction joints in succeeding courses by at least 6 feet (1.6 m). Do not use wood or metal headers to form joint edge during rolling of the fresh mixture. Saw header to a straight line at right angles to the center line to provide a full thickness vertical edge before continuing paving. Provide a 10 foot (3 m) straightedge for checking transverse construction joints for smoothness. Before compaction, use hand methods to correct surface variations at transverse construction joints indicated by the straightedge.

c. When a transverse construction joint is open to traffic, install a temporary runout 10 feet (3 m) long per 1 inch (25 mm) of lift thickness. Use suitable paper or burlap (not sand, dirt, or wood) under the taper to prevent adhesion.
d. When required to end paving for winter shutdown, locate runouts adjacent to each other. Install a winter shutdown runout 25 feet (8 m) long per 1 inch (25 mm) of lift thickness.
e. For temporary runouts open to traffic for periods greater than 4 weeks or winter shutdown runouts, the Contractor may reduce the amount of top size aggregate in the transition taper. Remove temporary runouts and winter shutdown runouts before commencing paving. Runout removal is incidental to the HMA mixture.

7. **Miscellaneous Operations.**

a. **Leveling and Strengthening Courses.**
1) The contract documents will show course thickness. Place strengthening and leveling courses as indicated in the contract documents. Use the same mixture specified for the base or intermediate course.
2) When the width of strengthening or leveling course is 8 feet (2.4 m) or more, spread using a finishing machine.
3) Compact leveling courses using Class II compaction, except make all passes with a pneumatic roller.

b. **Wedge Courses.**
1) Use the base or intermediate mixture to construct wedge courses used to secure desired curve super-elevation. When possible, spread using a finishing machine.
2) Place wedge courses in compacted layers no thicker than 3 inches (75 mm). Avoid crushing the coarse aggregate. Place wedge courses to the full width of the pavement.
3) On super-elevated curves which require wedge course placement, stage the shoulder construction. After completing each day's wedge placement operations and prior to suspending that day's construction activities, construct a full width shoulder on the high side up to the completed wedge course elevation. Shoulder construction staging will be considered incidental to shoulder construction.

c. **Fixtures in the Pavement Surface.**
1) Adjust utility accesses, intakes, or other fixtures encountered within the area to be covered by HMA to conform to the final adjacent finished surface. Unless specified otherwise in the plans, adjust fixtures:
- Between placing the surface course and the layer preceding the surface course, or
- After placing the surface course using a composite patch or PCC patch.

2) Use PCC and HMA patch material complying with the requirements of Section 2529. Make patches large enough to accommodate the structure being adjusted.
3) Construct patches to be square. Orient them diagonally to the direction of traffic flow. Ensure the elevation of the adjusted fixture and patch does not differ from the elevation of the surrounding pavement surface by more than 1/4 inch (6 mm).

d. **Fillets for Intersecting Roads and Driveways.**
1) Shape, clean of loose material, and tack coat the surface adjacent to the pavement being surfaced when fillets are designated in the contract documents for driveways to homesteads and commercial establishments and at intersecting roads. On the tack coated surface, place and compact the hot mixture in layers equal to the adjacent layer. Extend from the edge of the pavement as shown on the plans.
2) Place and compact fillets at intersecting roads at the same time as the adjacent layer.
3) Entrance fillets that are 8 feet (2.4 m) or wider may be placed as a separate operation. Pave fillets which are 8 feet (2.4 m) or wider with a self propelled finishing machine described in Article 2001.19.
4) The Engineer may approve other equipment for placement of fillets, based on a demonstration of satisfactory results.

e. **Stop Sign Rumble Strips.**
If the plans include the bid item Rumble Strip Panel (In Full Depth Patch), apply Section 2529. To meet the requirements of placing Stop Sign Rumble Strips before opening roadway sections to traffic, the Contractor may construct temporary rumble strip panels meeting the final pattern and location of the Stop Sign Rumble Strip indicated in the plans

f. **Paved HMA Shoulders.**
1) Compact paved HMA shoulders using one of the following methods:
a) Class II compaction (Article 2303.03, C, 5, c),

b) Rolling pattern established during the first day of shoulder placement to achieve Class 1C compaction (Article 2303.03, C, 5, b, 3), or
c) Same rolling pattern established for mainline lanes, as determined by density coring.

2) Shoulder area will not be included in calculations for density price adjustment on mainline. A price adjustment may be applied to shoulder areas that do not adhere to the established roller pattern.

D. Quality Assurance Program.

For each HMA mixture bid item of more than 1000 tons (1000 Mg), apply requirements of this article.

HMA mixture bid items of 1000 tons (1000 Mg) or less and patching bid items are both defined as small quantities. For those bid items, meet the requirements of Article 2303.03, E.

1. General.

Follow the procedures and meet the criteria established in Articles 2303.02 and 2303.03, B, Section 2521, and Materials I.M. 510 and 511.

2. Mix Design - Job Mix Formula.

a. The Contractor is responsible for the JMF for each mixture.

b. Submit a completed JMF, using the computer format of Form 956, for approval to the materials lab designated by the Contracting Authority. Submit supporting documentation demonstrating the design process was followed and how the recommended JMF was determined. Include an economic evaluation when required. Include trial and final proposed aggregate proportions (Form 955) and corresponding gyratory data. In addition, submit sufficient loose mixture and individual material samples for approval of the design.

c. Personnel preparing the JMF shall be Iowa DOT certified in bituminous mix design.

d. If the JMF is not satisfactory, submit another JMF for review. An approved JMF will be required prior to beginning plant production. The Contractor will be charged $1000 for each JMF approval requested and performed which exceeds two per mix size, type, and proposal item on any individual project or group of tied projects.

3. Plant Production.

a. General.

1) Perform sampling and testing to provide the quality control of the mixture during plant production. Certified Plant Inspection according to Section 2521 is required.
2) Personnel performing production quality control testing shall be Iowa DOT certified for the duties performed.
3) Provide easy and safe access for Iowa DOT staff to the location in the plant where samples are taken.
4) A "significant mix change" is defined as a single occurrence of an aggregate interchange of greater than 5%, a single occurrence of an asphalt content change greater than 0.2%, or any deletion or introduction of a new material into the mix.

b. Sampling and Testing.

1) Sample and test asphalt binder to verify the quality of the binder grade. Take asphalt binder samples at random times as directed and witnessed by the Engineer according to Materials I.M. 204.
2) Use cold feed gradation for aggregate gradation control to assure materials are being proportioned according to the specifications. Take aggregate samples at random times as directed and witnessed by the Engineer according to Materials I.M. 204. The Engineer will secure the samples according to Materials I.M. 511.
3) Sample the hot HMA mixture at random locations as directed and witnessed by the Engineer according to Materials I.M. 322. Secure the samples according to Materials I.M. 511.
4) Assist the Engineer with material sampling for verification testing. When the Engineer provides notification that a sample is to be taken, obtain sample within 15 minutes.
5) Each day's production of a mix design will be considered a lot.
   a) When the anticipated quantity for the day is 2000 tons (2000 Mg) or more, divide that day's production into four sublots, with the first sublot being the first 500 tons (500 Mg) produced. The Engineer will divide the remaining anticipated quantity for the day into three equally sized sublots.

b) When the anticipated quantity for the day is less than 2000 tons (2000 Mg), use the first 500 tons (500 Mg) produced for the first daily sublot. The Engineer will establish 750 ton (750 Mg) daily sublots for mix production exceeding the first 500 tons (500 Mg).

6) No more than four paired hot HMA mixture samples will be required for acceptance of a lot.

7) Do not take paired samples from the first 100 tons (100 Mg) of mix produced each day or the first 100 tons (100 Mg) of mix following a significant mix change.

8) Test the quality control sample of each production paired sample as follows:

a) Prepare and compact two gyratory specimens according to Materials I.M. 325G.

b) Determine the density for each specimen according to Materials I.M. 321. Average the results to determine sample density.

c) Use the field quality control laboratory compaction for field density control. The laboratory density for field control will be the bulk specific gravity of compacted mixture (G_{mb}) at N_{design}. Bulk specific gravity at N_{design} will be determined by compacting specimens to N_{max} and back calculating the bulk specific gravity at N_{design}.

d) Determine the Theoretical Maximum Specific Gravity of the uncompacted mixture according to Materials I.M. 350 or other test methods recognized by AASHTO or ASTM.

e) Determine laboratory air voids for each sample according to Materials I.M. 501.

9) When liquid anti-strip additives are used, satisfy one of the following methods to regulate the quantity of additive:

a) Present certification that the equipment used to measure and blend the liquid anti-strip additive:

- Meets the anti-strip supplier's recommended practice,
- Is directly tied to the asphalt binder supply system, and
- Has been calibrated to the equipment manufacturer's guidelines.

b) Test the binder to measure the quantity of liquid anti-strip additive in the binder for every 5000 tons (5000Mg) of HMA production. Obtain the Engineer's approval for the supplier's test method prior to use of the test.

c) Run AASHTO T 283 during production. If unable to certify or test for the presence and quality, run AASHTO T 283 each 10,000 tons (10,000 Mg) of production to measure the effectiveness of the additive. Ensure test results satisfy 80% TSR when compared to the dry strength of specimens prepared with asphalt binder containing the additive.

c. Production Control.

1) After the JMF is established, the combined aggregate furnished for the project, the quantity of asphalt binder, and the laboratory air voids should consistently comply with the JMF, as target values. Control them within the production tolerance given in Table 2303.03-4.

Table 2303.03-4: Production Tolerances

Measured Characteristic	Target Value (%)	Specification Tolerance (%) [a]
Cold feed gradation No. 4 (4.75 mm) and larger sieves	by JMF	± 7.0
Cold feed gradation No. 8 (2.36 mm)	by JMF	± 5.0
Cold feed gradation No. 30 (600 µm)	by JMF	± 4.0
Cold feed gradation No. 200 (75 µm)	by JMF	± 2.0 [b]
Daily asphalt binder content	by JMF	± 0.3
Field laboratory air voids	4.0 [c]	-0.5/+1.0 [d]
VMA [e]	by JMF	± 1.0 [f]

(a) Based on single test unless noted otherwise.

(b) Maintain the filler/bitumen ratio of the plant produced mixture between 0.6 and 1.4.

(c) Unless otherwise specified.

(d) Based on the moving average of four test values.
(e) Restricted to an asphalt film thickness as specified for the level of HMA mixture.
(f) Based on the daily lot average.

2) Control plant production so that the plant produced HMA mixture will meet mixture design criteria (within the test tolerances given in Table 2303.03-4) for Air Voids and VMA at N_{design} gyrations of the gyratory compactor. Monitor the slope of the gyratory compaction curve of plant produced material. Slope variations in excess of ±0.40 of the mixture design gyratory compaction curve slope may indicate potential problems with uniformity of the mixture.
3) The gyratory mix design gradation control points for the size mixture designated in the project plans will not apply to plant production control.
4) Strive for the target value of the percent air void and asphalt binder by adjusting gradation and asphalt binder content.
5) Produce a uniform composition mixture complying with the JMF.
6) Adjustments to the JMF target gradation and asphalt binder content values may be made.
   a) The Contractor determines from quality control testing that adjustments are necessary to achieve the specified properties.
   b) Consult with the Engineer regarding adjustments to the JMF.
   c) The Contractor's adjustment recommendations prevail, provided all specifications and established mix criteria are being met for plant production.
7) Measure estimated film thickness and voids in the mineral aggregate (VMA) for specification compliance every day of HMA production.
8) Prepare quality control charts according to Materials I.M. 511. Keep the charts current and available showing both individual sample results and moving average values. Base moving average values on four consecutive sample results. Moving averages may restart only in the event of a mandatory plant shutdown for failure to maintain the average within the production tolerance. Include the target value and specification tolerances on control charts.
9) Calculate laboratory voids for individual samples according to Materials I.M. 501. Use the individual density and individual maximum specific gravity determined for each sample. To determine the moving average of laboratory voids, use the average of the last four individual sample laboratory voids.
10) Monitor the test results and make mix adjustments, when appropriate, to keep the mixture near the target values. Notify the Engineer whenever the process approaches a specification tolerance limit. Cease operations when the moving average point for laboratory air voids is outside the specification tolerance limit. Assume responsibility to cease operations, including not incorporating material which has not been placed. Do not start the process again until notifying the Engineer of the corrective action proposed.

4. Construction.

a. Density.

1) Take density samples from the compacted mixture and test no later than the next working day following placement and compaction.
2) A lot is considered to be one layer of one mixture placed during a day's operation. The Engineer may approve classifying multiple layers of construction placed during a single day as a lot provided only one mixture was used.
3) The Engineer may waive sampling for density in the following situations, provided compaction has been thorough and effective:
   - When the day's operation is not more than 2500 square yards (2500 m^2),
   - When the day's operation is not more than 500 tons (500 Mg),
   - When the mixture is being placed in irregular areas, or
   - When placing wedge or strengthening courses.
4) The Engineer will obtain and test density samples for each lot according to Materials I.M. 204. The Engineer will determine the core locations. The minimum number of cores is set forth in Materials I.M. 204, Appendix F. The length laid in each lot will be divided into approximately equal sublots. Obtain one sample at a random location, as directed and witnessed by the Engineer, in each sublot.

5) If a sample is damaged or measures less than 70% or more than 150% of the intended thickness, an alternate sampling location will be determined and used. Take samples from no less than 1 foot (300 mm) from the edge of a given pass of the placing equipment, from run-outs, or from day's work joints or structures.

6) Determine the quality index for density of each lot using the following formula:

$$QI_{Density} = \frac{(\text{Average } G_{mb})_{\text{Field Lot}} - ((\%\text{ Density})_{\text{Specified}} \times (\text{Average } G_{mb})_{\text{Lab Lot}})}{(\text{Standard Deviation } G_{mb})_{\text{Field Lot}}}$$

where $QI_{Density}$ = Quality Index for density
G_{mb} = bulk Specific Gravity of the mixture

7) When the quality index falls below 0.00, the Engineer may declare the lot or parts of the lot defective.

8) If one of the density test values from a lot is an outlier, identified according to the procedure described in Materials I.M. 501, do not use the outlier value to determine the quality index. Use the remaining density test values to determine the quality index.

9) If only one laboratory density value is obtained that day, combine that value with the next day's test results to evaluate both days' production. If two or more laboratory density values are obtained that day, then use the average of those tests alone. If a significant mix change has been made, only the appropriate laboratory density values should be used with the corresponding density cores.

b. Thickness.

1) The Engineer will measure the cores, exclusive of sealcoat, according to Materials I.M. 337. All areas of uniform and similar thickness and width for the project will be divided into lots.

2) Use the frequency specified for taking density samples from the surface lift when measuring for completed thickness. Samples for thickness not tested for density, because they are less than 70% of the intended thickness, are included for thickness. In these particular instances, do not measure the thickness of additional sufficiently thick samples used for density tests. Take thickness samples full depth of the completed course. After measurement, remove the density samples for the top layer from the core.

3) If any of the measurements for a lot is less than the designated thickness, the quality index for thickness of that lot will be determined by the following formula:

(English)

$$QI_{Thickness} = \frac{\text{Average Thickness}_{\text{Measured}} - (\text{Thickness}_{\text{Plan}} - 0.5)}{\text{Maximum Thickness}_{\text{Measured}} - \text{Minimum Thickness}_{\text{Measured}}}$$

(Metric)

$$QI_{Thickness} = \frac{\text{Average Thickness}_{\text{Measured}} - (\text{Thickness}_{\text{Plan}} - 12.7)}{\text{Maximum Thickness}_{\text{Measured}} - \text{Minimum Thickness}_{\text{Measured}}}$$

4) Provided there is reasonable assurance that the pavement complies with the required thickness, the Engineer may waive sampling for thickness for the following situations:
   a) When the day's operation is 2500 square yards (2500 m^2) or less.
   b) When the mixture is being placed in irregular areas.
   c) When the mixture is being placed next to structures.

5) When the quality index falls below 0.00, the Engineer may declare the lot or parts of the lot defective.

c. Smoothness.

Apply Section 2317 to HMA surface mixture bid items of a Primary project if any individual HMA mixture bid item is 1000 tons (1000 Mg) or greater or 5000 square yards (4200 m^2) or greater. Apply Section 2316 to all other Primary projects with a surface course and when specifically required for other projects.

5. **Sampling and Testing.**
   a. **General.**
      1) Maintain and calibrate the quality control testing equipment using prescribed procedures. Sample and test according to the specified procedures as listed in the applicable Materials I.M. and Specifications. When the results from a Contractor's quality control lab are used as part of product acceptance, the Contractor's quality control lab is required to be qualified.
      2) Identify, store, and retain all quality control samples and field lab gyratory specimens used for acceptance until the lot is accepted. The Contracting Authority will prescribe the method of securing the identity and integrity of the verification samples according to Materials I.M. 511. Store verification samples for the Contracting Authority until delivery to the Contracting Authority's lab.
      3) Identify all samples using a system the Engineer approves.
   b. **Individual Materials and Loose Mixture.**
      1) Complete the following as designated by the Engineer:
         - Identify samples of asphalt binder, aggregate, and tack coat material.
         - Secure and promptly deliver the samples to the appropriate laboratory.
      2) Take paired samples of loose HMA mixture (each box of the pair weighing at least 30 pounds (14 kg)) according to Materials I.M. 322.
      3) Conduct quality control tests for mixture properties using representative portions of the mix from the quality control sample of each sublot.
      4) Split samples for specimen preparation according to Materials I.M. 357.
      5) Paired sampling may also be accomplished by taking a bulk sample and immediately splitting the sample according to Materials I.M. 322 on the grade.
      6) Record and document all test results and calculations on data sheets approved by the Contracting Authority. Record specific test results on the Daily Plant Report the Contracting Authority provides. Also include a description of the quality control actions taken (adjustment of cold feet percentages, changes in JMF, and so forth) on the Daily Plant Report.
      7) Facsimile, or deliver by other methods the Engineer approves, the Daily Plant Report to the Engineer and the designated laboratory daily. At project completion, provide the Engineer a copy of the electronic file containing project information generated during the progress of the work.
      8) When sampling for AASHTO T 283, obtain a 50 pound (25 kg) sample according to Materials I.M. 322. The Engineer will select, at random, the sample location. Split the sample and deliver half to the Central Materials Laboratory.
   c. **Compacted Pavement Cores.**
      1) Cut and trim samples under the direction of and witnessed by the Engineer for tests of density, thickness, or composition by using a power driven masonry saw or by drilling a minimum 4 inch (100 mm) nominal diameter core.
      2) Restore the surfaces the same day. Dry, fill with the same material, and properly compact core holes.
      3) Pavement core samples will be identified, taken possession of by the Engineer, and delivered to the Contractor's quality control field laboratory.
      4) The Engineer may either:
         - Transport the cores directly to the lab, or
         - Secure the cores and allow the Contractor to transport the cores to the lab.
      5) The compacted HMA pavement will be tested in a timely manner by the Engineer's personnel who are Iowa DOT Certified to perform the test.
      6) Prepare and test the cores according to Materials I.M. 320, 321, and 337.
   d. **Verification and Independent Assurance Testing.**
      1) The Contractor's quality control test results from paired samples will be validated by the Engineer's verification test results on a regular basis using guidelines and tolerances set forth in Materials I.M. 216 and 511.
      2) If the Engineer's verification test results validate the Contractor's test results, the Contractor's results will be used for material acceptance. Disputes between the Contractor's and Engineer's test results will be resolved according to Materials I.M. 511.
      3) The Engineer will randomly select, one or more of the daily hot mix production verification samples. Some or all of the samples selected will be tested in the materials laboratory designated by the Engineer. The Engineer will use the

verification test results to determine if the Contractor's test results can be used for acceptance.

4) The Engineer will test each lot of cores. These will be tested at the Contractor's field quality control laboratory. Cores may also be tested by the Contractor, but the Contractor's test results will not be used for material acceptance.
5) Personnel and laboratories performing tests used in the acceptance of material are required to have participated in the statewide Independent Assurance Program according to Materials I.M. 208.

E. Quality Control for Small HMA Paving Quantities.

1. Mix Design.
Prepare the JMF. Prior to HMA production, obtain the Engineer's approval for the JMF. Comply with Article 2303.02 and Materials I.M. 510.

2. Plant Production.
- **a.** Ensure HMA production plant calibration for the JMF is current and no more than 12 months old.
- **b.** Use certified asphalt binder and approved aggregate sources meeting the JMF. Ensure the plant maintains an asphalt binder log to track the date and time of binder delivery. Ensure HMA delivery tickets identify the JMF.
- **c.** Monitor the quality control test results and make adjustments to keep the mixture near the target JMF values.

3. Construction.
- **a.** Take compacted mixture density measurements, except when Class II compaction is specified. Use the field quality control laboratory compaction for field density control, as specified in Article 2303.03, D. The Engineer may accept the density of the compacted layer based on cores or density gauge. The Engineer may waive density measurement provided the compaction has been thorough and effective. Take compacted mixture density measurements no later than the next working day following placement and compaction.
- **b.** For small quantities, a lot will be the entire quantity of each HMA mixture bid item.
- **c.** The quality index for density will not apply to small quantities.

4. Sampling and Testing.
- **a.** Material sampling and testing is for production quality control only. Acceptance of mixture is based on Contractor certification. Perform a minimum of one aggregate cold-feed and one loose HMA test per lot. Sampling and testing of loose HMA is only required for mechanically placed mixture. Sample and test according to the Standard Specifications and Materials I.M.s using certified technicians and qualified testing equipment. The Engineer may approve alternative sampling procedures. Take the sample between the first 100 to 200 tons (100 to 200 Mg) of production. No split samples for agency verification testing are required.
- **b.** Asphalt binder will be accepted based on the asphalt supplier's shipment certification. No binder sampling or testing is required.
- **c.** Material sampling or testing is not required for daily HMA production of less than 100 tons (100 Mg) of any mixture on any project.

5. Certification.
- **a.** Provide a certification for the production of any mixture in which the requirements in this article are applied. Place the test results and the following certification statement on the Daily HMA Plant Report (Form 800241).

  "The HMA mixture contains certified asphalt binder and approved aggregate as specified in the approved mix design and was produced in compliance with the provisions of Article 2303.03, E"
- **b.** The Daily HMA Plant Report for certified HMA may be submitted at the end of the project for all certified HMA quantities, or submitted at intervals for portions of the certified quantity.

Form 131071wd
05-00

Iowa Department of Transportation

Office of Purchasing

PROPOSAL GUARANTY
(Bid Bond Form)

KNOW ALL PERSONS BY THESE PRESENTS: That we, _____ (Bidder's Name) _____ of _____ (City,State)

as principal, and the _____ (Surety)

of _____ (Address) as Surety, are held and firmly bound unto the Iowa Department of Transportation and to the State of Iowa, or Municipality as defined in Iowa Code Section 23.1 as applicable, hereinafter defined as Obligee, in the penal sum as shown in the contract documents of the specified project, for which payment said principal and surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

WHEREAS, the principal is herewith submitting his/her or its sealed proposal for:

Item Description _____ (Commodity) , or

Type of Work _____ (Service)

Date of Letting _____ , 20 _____ .

NOW THEREFORE, if the said proposal bid by said principal be accepted, and the principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond as may be specified in the bidding or contract documents with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof, then this obligation shall become null and void or in the event of the failure of the principal to enter such contract and give such bond, the principal shall pay to the Obligee the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

IN WITNESS WHEREOF, the principal and surety have caused these presents to be signed this _____ day of _____ , 20 _____ .

_____
Principal
(Bidder's Name)

By _____
Bidder's Signature

_____
Surety

By _____
Authorized Surety Representative

Bidder _____

_____

_____

_____

SEALED BID

PROPOSAL NO: _____

PROPOSAL DESCRIPTION: _____

LETTING DATE: _____

Iowa Department of Transportation
PURCHASING – SEALED BID PROPOSAL
800 Lincoln Way
Ames, Iowa 50010